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THE
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EDITOR:
C. N. JOHNSON, L.D.S., D.D.S.

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Allen, E. H.
Almon, Homer

Bellchamber, C. E.
Burke, N. L.

Chambers, W. T.
Cross, H. A.

Darling, H.
Denton, H. B.

Fellman, W. O.

Gowan, W. C.
Graber, R. L.

Hadley, C. J.
Hancock, H. H.
Hemphill, W. J.
Hershey, G. S.
Hewett, A. C.

Johnson, C. N.
Johnson, G. W.

La Pierre, Louis S.
Lewis, A. M.
Lynch, T. A.

McElhinney, Mark G.
Martin, Oliver
Miller, F. S.
Mills, J.
Moyer, Sylvester
Munroe, Grafton.

Pearce, R. M.
Platt, J. Nelson

Raiche, F. E.
Robertson, W. A.
Rohland, C. B.

Sparks, R. E.
Stephan, F. W.

Taylor, C. R.
Thornton, A. W.
Thorpe, Burton Lee
Trueman, Wm. H.
Tweedle, W. H.

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Aigley, J. E.	Farmington, Ill.
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Wright, C. E.	Chicago, Ill.
Wright, C. M.	Cincinnati, Ohio.
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DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

PREVENTIVE DENTISTRY.*

BY L. C. BRYAN, D. D. S., BASLE, SWITZERLAND.

It seems to be quite useless to call the extended attention of the distinguished audience assembled at this Madrid Medical Congress to the fact that dentistry since its inception and all through the history of its development and evolution up to the present day has confined itself almost exclusively to repairing the ravages of decay, but it is desirable to make some notes of the fact. From primitive times the records of dental treatments and operations confine themselves to relief of pain in the dental organs or their forcible removal with the same object in view..

We look in vain through the medical and dental records of the past for any systematic method employed by the professional dentist or medical man to prevent decay of the teeth. This important branch of our labors—Prophylaxis—we have delegated to our patients until a very recent date, but Dr. Smith of Philadelphia is now heading a grand reform in this matter and we will hear from Dr. Wright in this meeting on this head. We have condescended as professional men to do a certain part of this work in removing calculus—prescribing washes and powders and selecting or approving certain forms of brushes and other toilet articles to be used by the patient, but this has been an understood departure from our higher office of devoting all our energies to the repair of decay when it came, and the subject of prevention has received a minimum of our time and thought. Our research in the fields of chemistry, bacteriology, therapeutics and allied sciences has been directed to the arrest of decay or searching for means to be applied systematically for building up more resisting tooth structures, and, as far as I know, no one has applied remedies externally in a successful manner to sound teeth and to those parts of these teeth where we know from clinical experience we can expect decay to occur with mathematical certainty under given conditions.

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*Read before the American Dental Society of Europe, Madrid, 1903.

Even the elements for tooth building which are recommended by some eminent authors to be supplied systemically are cried down by equally able and scientific investigators as utterly useless. We have tried phosphates and Grahamite Elixirs of tooth life only to be laughed to scorn by orators as "long-haired men and short-haired women," and they tell us there is no Balm in Gilead. Then we have folded our hands discouraged or we have caught the dorsal appendage of this ravenous beast "*decay*" and are dragged along in a hopeless struggle through our whole professional career when we should have faced it at the beginning armed with the sword of Prophylaxis and have battled for prevention.

I have come to far-away Madrid to tell you there is a Balm in in Gilead and I believe by the time of the next Congress in St. Louis I will be able to demonstrate that there are a half-dozen such which will be an untold blessing to humanity. I have struggled along a quarter of a century repairing the ravages of decay when, like the rest of us, I had the specific for the evil corked up and labeled *remedy*, whereas it should have been labeled in flaming colors *preventive*. It is a bottle which in the past I have looked on as a sort of Pandora's Box, the cork of which I dreaded to remove. Now I find it to be one of the most powerful, reliable and harmless remedies in our special Materia Medica and use it freely daily.

Nitrate of silver is now my main reliance for stopping and preventing decay and has been for retarding since my college days, but it has only been about three years that I have used it on sound teeth to make them immune from decay and build up strong, hard tooth substance to resist the approach of decay.

You are all familiar with its effects on erosion, superficial decay and defects where softening of the tooth commences and the decay is not deep enough to require filling. The use of $Ag\ N\ O_3$ under varying conditions has been recommended largely and most earnestly by American writers commencing with Brooks in the year 1854 in the *American Journal of Dental Science*, as quoted by Szabo (*Oest. Ungar. Vierteljahrsschrift fur Zahnheilkunde,* January, 1902) in his most comprehensive resumé of the literature of Nitrate of Silver, which I have largely drawn from, and his valuable addition to the histological and clinical phases of its place in dentistry. Stebbins in the *International Dental Journal* for Oct., 1891, was my first inspirer in the use of Ag N O_3, and since reading his article in which he described his treatment of school children's teeth, only in cavities and on defective surfaces, I have used it in increasing quantities and have finally come to look upon it as not only a valuable treatment for defects in the teeth but for stimulating new activity in the tooth building cells.

Dr. Stebbins writes: "Some patients would object to have it applied to any tooth on account of the color. Others would be pleased to have it used where the cavity would not be seen. But there are thousands who must have some such treatment, or become edentulous. Children who are too sensitive to have teeth filled, or whose parents have not the means to pay for filling, must have some relief or suffer untold misery, and lose their temporary teeth too soon, thereby involving themselves in lifelong troubles. Having witnessed the relief of so many children from constant agony, and their exemption from toothache for years by the application of this agent, it seems to me it is worthy a larger place in our practice."

Prof. Miller—*Cosmos*, May, 1902, p. 430—says: "If teeth with decay marks are left in hydrochloric acid till the enamel begins to dissolve away it will be found that these spots resist the action of the acid longer than the normal enamel." And in a footnote he says: "If we could determine the nature of the process which takes place in the decay marks, we ought to be able to derive some suggestion from it which would be of value in the prophylactic treatment of the teeth as well as in dealing with caries."

Personally in a letter to me he questions my theory of the stimulation of the tooth building and repairing cells and thinks I could get the same results in dead teeth as in living ones with the nitrate of silver. However, we know that these building cells of the teeth go on through life strengthening the teeth and depositing additional lime salts from foetal life to old age. Half the writers who recommend nitrate of silver speak of the hardening of surfaces of teeth treated with it. We know that the commencement of decay produces an irritation and stimulation of the tooth building functions of the pulp, that secondary dentine is thrown out and possibly enamel is made more resisting, which, under favorable conditions, stops the decay by building up a dense resisting wall in the track of the decay. This, my clinical experience has convinced me, is accomplished by the peculiar action of the nitrate of silver on the deeper tissues and pulp in a much more effectual way, while the coagulating effect (on the albumen of the tubuli) producing albuminate of silver and various other combinations, according to Prof. Chas. Moyr, in the outer ends of those tubuli allows the fortifying process of the pulp to go on under protection from the outer impenetrable coating deposited in the softened dentine. This is only a theory of mine which is not accepted as yet by those histologists who have made a life study of the subject, which I have not, and, until I have proved it microscopically, I only throw it out as a suggestion and a theory and ask the investigation of it by those more capable than I to prove or disprove it. The clinical results convince me of its correctness for the present.

Szabo writes: "For the purpose of stopping this carious process one desires to make the softened dentine hard (?), and for this purpose one uses the nitrate of silver in the form of a pencil or powder, etc."—(Notice the question mark.) He evidently does not believe in the theory of a deposit of a harder dentine substance through the action of Ag N O_3.

Professor Miller (*Conservirende Zahnheilkunde*, 1898) quotes Stebbins and gives his results with 35 school children where he treated 64 cavities, and after one year found in 37 cases no progress of the decay, while 14 cases showed traces of progress of decay and 13 cases where no lasting results were observable from the treatment and decay had recommenced after a year. It seems to me as if these statistics would have been more valuable if the treatment had been repeated in four or six months and continued for some years as I propose to do with my 100 cases, where I shall saturate all the teeth, new and old, semi-annually from incisors to molars—in the hope of *preventing* caries—and thus treat all newly erupting weak teeth prophylactically, nipping the evil in the bud.

The literature of nitrate of silver is rich and well worthy of study, but nowhere in my search have I found a writer who advocates more than touching danger points or using it as a remedy for existing evil, and I think I am justified in the time I am consuming of this Congress in emphasizing its importance as proved in my hands and Dr. Frank's, whose results and methods I have only heard of on my way to this Congress and which are much in the line of my own, by exterior use as a preventive of decay and a stimulant (of which I am clinically convinced, but which still remains to be proved microscopically) of the odontoblasts to build up secondary dentine and to deposit lime salts in weak parts of defective teeth and strengthen sound teeth, at the same time that it deposits an antiseptic layer or coating of silver salts on the surfaces of the teeth and coagulates the albumen in the tubuli to a certain depth (½ to 1 mm. in softened dentine and infinitely less on hard surfaces), thus limiting its penetrative power by making an impassable and insoluble barrier where it is most needed. Its effects on diseased gums are something marvelous, and it is a well-known remedy in Pyorrhea Alveolaris or Alveolitis and many of the ills of the mucous membrane of the oral cavity and other mucous tracts. Bouchacourt recommended it in 1854 against stomatitis used as a mouth wash.

We have, however, failed to appreciate its peculiar stimulating effect on sound dentine and those invisible defects in apparently sound teeth where it will penetrate and deposit its salts in such a way as to prevent the penetration of bacteria into the tubuli, by destroying the food supply of the germs or converting it into indigestible material which will resist for a certain time the effects of fermentation and other processes of decay. Exactly what the time limit of this immunity is, remains to be established under varying conditions, but it may be roughly stated that the mummifying (coagulating) effects remain for from some months to many years, depending on the situation and environment of the treated surface.

We need not further consider the well known qualities of Ag N O_3, but confine ourselves to considering results in a new field—the most important found yet—and this seems to be my contribution to the subject, the early treatment of teeth known to be of a weak texture by bathing them freely on all exposed surfaces on their first appearance through the gums and repeating this at intervals of from four months to a year. It is a question if sound teeth need to be bathed with a 40 per cent solution of Ag N O_3 oftener than from every six months to a year, but my best results in unfavorable conditions and positions have been secured in varying periods of treatment, and I cannot say positively if it is necessary to apply it oftener than once a year, as the cases of superficial decay so treated have been quite as satisfactory as those treated oftener.

I now propose to take 100 new patients between the ages of five and seven and treat one side of the mouth above and below without undertaking any filling of teeth. The other side will be left for comparison, and we will in this way be enabled to make comparative tests of the method as a preventive. In my private practice I have naturally filled every cavity as soon as it could be filled as a rule, and when the history of the case and the family showed that I would have great difficulty in saving the teeth I have freely bathed the newly erupting teeth with 40 or 50 per cent nitrate of silver and then dried it off till only pure crystals were deposited over the surfaces of the teeth and in the invisible defects or commencements of decay. I commenced this in desperation two years ago in a case where for a healthy girl of eight of good family, well nourished, etc., I had put from six to ten fillings in the first permanent molars. The upper incisors showed softening and decay immediately after eruption, and these were bathed freely and kept dry under rubber until a quantity had been applied and dried in several times. The incisors were then brushed with pumice and found not to be discolored except on softened places out of sight, and these places were removed partially when not too deep and retreated, and deeper defects left dark when not in view. The erupting bicuspids were also treated so. After two years of this treatment the defects in the incisors remained without further advance of decay in any part and looked stronger and denser than before. Two bicuspids (lower first) in this mouth illustrate the effects of nitrate of silver. The left one erupted some months before the person came for usual treatment. When I saw the patient it was more than half erupted and the surface was already rough, softened and defective, and took on the peculiar dark stains when treated with nitrate of silver almost over its whole surface, while the other on the right side was just erupting, and the application of nitrate of silver left no stain, and no roughening or decay has since occurred on it!

As the lower incisors never decay till all the other teeth are either badly decayed and filled or lost entirely, I did not give them any treatment, and they not being subject to tartar at this age in a well kept mouth, I gave them no further thought until last winter, when I brushed them up with a wheel and found to my astonishment that they were decayed on all proximal surfaces except next to the cuspids which were just erupting. I put in six fillings (proximal) in these four lower incisors—something I have never been called on to do before and probably never will be again.

None of my dentist friends have ever seen a case like this, and there are two gentlemen present who saw the case as I presented it in March at a dental meeting in my office. At her last semiannual sitting there were no new cavities in any of the teeth and only two old amalgam fillings in temporary molars had to be renewed, as they had broken out. Within the last three years I have treated many, both old and young, with this bath of nitrate all over every tooth, and the benefits have been invariably immediately noticeable, and I feel perfectly confident now that I can take 100 children under the most unfavorable circumstances at the age of 5, and by bathing all the teeth freely with nitrate immediately the permanent ones appear through the gums, taking half an hour thrice a year, I will bring the teeth with the worst pedigree up to the age of maturity without serious cavities or fillings! Having confined myself heretofore to patients in a select practice with a limited number of young patients, I have been unable to make such tests as I now shall in the next year with my 100 poor children, and I will thus be able to submit statistics which I hope for humanity's sake may show similar results on a large scale as I have seen in a limited number of cases.

The drawbacks to the use of nitrate of silver is its staining the hands and the linen of the dentists, the defective spots in and between the teeth and occasionally, even with the greatest care, the lips of the patient, especially the very young and unquiet folk we have to deal with at the age of four or five. In giving some details of my method I think my large experience in this very troublesome and disagreeable remedy will enable me to give some hints which may be of benefit to the most experienced among you.

Let us take a patient of six years with the first permanent molars erupted. Decayed proximal surfaces on temporary molars are ground off V-shaped, having them only touching at the gum line and leaving the mesial surfaces of the first permanent molars free as recommended by Arthur in the first work I ever read on dentistry a quarter of a century ago. Cotton or paper rolls are laid above the upper left row of teeth; cotton rolls are better to manage than paper rolls or napkins, as these often require so much manipulation that the fingers of the operator become stained. The teeth are dried off with paper or spunk with alcohol or ether. If covered with dentritus they are previously cleaned with engine brush wheels. All fine sulci and defects are scraped out with fine pointed explorers. A thin burnisher or spatula is forced between the teeth in contact, or tape or silk with pumice powder is passed between to insure the flowing of the nitrate of silver where it is most needed. When all surfaces are perfectly dry and clean a pellet of cotton no larger than a grain of wheat is dipped in 40 per cent nitrate of silver and the surplus taken off by touching it on an absorbent surface outside the mouth. The teeth are all now moistened with the medicine, applying freely down to the gums and pressing it in the sulci and crevices. When all are moistened a very thin steel spatula or steel pin ground thin which will pass freely between the teeth is dipped in the fluid and a part of a drop is thus conveyed to the interproximal spaces and the spatula wedged in so that the fluid will flow by capillary attraction into all spaces and defects on the proximal surfaces. A fine needle explorer, Nos. 13 or 14 of the S. S. W. set, will work the fluid into the sulci where it is of the greatest importance, and if this is not done, the medicine will not penetrate the accumulations in these little depressions and will be lost in its effects where it is most needed, and the lower surfaces of this fermenting mass will go on with its work of decay, although the remainder of the tooth has been bathed with nitrate. The 40 per cent nitrate may flow on the margins of the gums and between gum and root with only beneficial effect. The cauterized darkened gum margins will exfoliate, leaving a stimulated and freshened gum in its place.

After the nitrate of silver has been dried in and reapplied and worked in until it has reached every possible surface and crevice we may secure a deposit of iodide of silver—a yellow insoluble antiseptic powder—in all the crevices of teeth, which will partially fill the spaces wherever the nitrate has flowed with a substance which is much more desirable than the usual dangerous accumulations which find their way in these depressions, by bathing the teeth on all surfaces with iodine tincture. This neutralizes the color and stain of the nitrate of silver and can be readily brushed away. The nitrate of silver, however, will penetrate further than the iodine, and thus we get the deeper effect of the nitrate of silver coagulation while the outer superficial portions are neutralized and stains minimized.

A similar neutralization may be accomplished with jod kali, producing a deposit of iodide of silver. Either of these or Eau de Javelle may be used to neutralize stains on the skin or linen or one may use sublimat 5.0, salt 5.0, and water 200.0 to remove stains.

$Ag N O_3$ should never be used on the front teeth about porcelain fillings or leaky gold fillings. The discoloration it produces on the surface of gold fillings is quickly and permanently removed. In passing it over amalgam fillings we get other undesirable and blacking metallic compounds which should not be carried to other tooth surfaces. Nitrate of silver is invaluable about the margins of defective plastic fillings, and Frank, of Vienna, uses it on darkened spots opposite cavities of decay, vide Szabo.

Harlan and Truman have widely divergent opinions as to its penetrating power, but Szabo has demonstrated conclusively that it is self-limiting in its penetrating powers and goes no deeper than from ½ to 1 mm. even if one uses from 10 per cent to pure crystals or innumerable times with the tooth perfectly dry under rubber. Pearce has made valuable contributions to the nitrate of silver literature, also has Shanasy, Chenpin and other authorities quoted at the end.

The length of this paper precludes the possibility of considering the various substitutes for nitrate of silver with its objectional color. Other medicaments may be found which will produce the same or equally desirable results, but they should have the identical action on dentine, enamel and the soft tissues, viz., have limited penetrating power in the tubuli, be cauterizing in their effects, be capable of coagulating albumen, have the peculiarly stimulating effect on dentine development which nitrate of silver has and not its color on defective surfaces of the teeth, be capable of producing in the softened dentine an impenetrable layer of coagulated albumin and destroyed dentine fibrils through which the caries germs (and their name is legion) cannot penetrate.

All the other *silver* preparations have the same objection in color though in less degree.

Lactate of silver (actol), soluble in 15 parts water, has certain valuable qualities, and itrol, soluble only in 4,000 parts water, does not seem to offer any points by which we can substitute it for nitrate of silver.

Nitrate of mercury I am now experimenting with and have two chemists making various tests, but clinically it has not been satisfactory as a substitute.

There is a possibility that sublimat—bichlorid of mercury—can be soaked into the defective dentine and reduced to monochlorid of mercury (calomel), giving a white insoluble powder instead of the black silver salts or the yellowish brown iodide of silver, but it is not up to the other requirements of a successor to the old reliable nitrate of silver.

None of these four—or chloride of gold—have been given the attention which they deserve in this great study of preventive dentistry, but it is my hope that the possibilities which I have just touched on in this paper may be worked out by our chemists and scientists in the profession, the latchets of whose shoes I am not worthy to undo. I appeal to them to come to the rescue of the ninety-nine who now "walk in darkness," at least in pain, from their fear of the pains of the dental chair, and that they may be able to bring about a state of affairs in our profession which will at least enable the coming generations to expect something from us dentists and stomatologists that the present and former generations have not had—preventive dentistry.

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MANAGEMENT OF CHILDREN'S TEETH.*

By Garrett Newkirk, M. D., Los Angeles, California.

He is a wise man who, when appointed to secure an essayist for a given time, makes an early effort. If one were asked to produce a paper on short notice he would be quite sure to think and say no, especially if it were for a society accustomed to the best things. He would think, and rightly, that he should be given more time to produce a paper worthy of the occasion. But ask him six months ahead and he will think, and say yes. It always seems easy to do something half a year hence. That is the reason people go in debt, taking chances often that bring them to grief.

And so the prospective essayist gives his promissory note to the committee man, and goes his way unburdened by fear of execution or the sheriff. He has been known to forget what he had given the note for, or even that he had given it at all. He has been guilty often of half payment, or, sometimes, of complete default.

The holder of a note, out of courtesy to the payor and to jog his memory as to dates, is accustomed to send notice. Woe to the poor delinquent then if he has made no arrangements to meet his obligation. He realizes with startled interest that the principal is due.

That is my position at this moment, and I have to depend on my uncertain memory for the title and subject. To the best of my knowledge and belief it was as above given.

If so, I must at the beginning make a paradox, that in this case the less includes the greater, i. e., the management of their teeth must include the management of the children themselves, and in this I take it more than half the battle may be won.

Now the basis of management in every professional line is, first of all,

CONFIDENCE.

Whether the managing party be a lawyer, doctor or preacher, those to be treated or operated on must have confidence in him. They must believe, first, that he is capable of doing just what he assumes to do; and, second, that he has their interest truly at heart. In other words he must be able, he must be honest, and he would better be likewise kind.

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*Read before the Chicago Dental Society.

Now there is no peculiar principle involved in the management of children. They are simply folk, of limited knowledge and experience, entitled, therefore, to an extra amount of consideration, courtesy and kindness. We must take them as they are, recognizing their limitations, physical and mental, and on our part act accordingly. We have first of all to get their confidence.

If we have not studied child nature, if we have forgotten what we thought and how we felt when we were children, if we do not understand, if we are prejudiced against, if we do not *love* children, we might as well quit before we begin their management.

Grown folk have their idiosyncrasies, affinities, attractions and repulsions, children have the same. Doctors have their different followings of adults, and they would naturally have the same of children; which means that there are temperamental, psychological reasons why no one man can manage all sorts of children equally well, and he will meet now and then an incompatible, who would not be incompatible with some other man.

I should say out of the width and depth of my experience that if one meets a child whom it is impossible to manage without the exercise of overpowering force and methods severe, there is something wrong, temperamentally, between the doctor and the patient, and some one else would do better. Again, as much depends upon the nervous condition of the manager as of the managee, and failure on a particular day may be followed by success on postponement to another sitting.

Much depends, I think, on the operator's confidence in himself. If he has a fear that he will not succeed with the child, a fear which makes him hesitating and uncertain in his movements, the child will note the fact instinctively and become untractable.

Those who have had experience with the control of animals, especially horses, know how important it is that action on the part of the reinsman shall be continuous, unhesitating and firm. In my experience with children I have not found it profitable to beat about the bush, or to attempt side issues to any great extent. As a rule, I prefer to go right at the main question and stay with it till it is settled. I think that I can get and keep the child's confidence better by getting started without preliminaries, and by keeping something doing. The "something doing" need not be of a strenuous character, but enough to keep up interest.

Another important thing in this connection is to make the child interested in his own case, not in general merely, but in detail. First of all let him have the hand mirror to hold. Give him an exhibit of his teeth, pointing out the spots of decay. Do not call them cavities, say holes. Never use a term that he is not likely to understand. Draw illustrations from things with which he is familiar. Ask him if he has seen decayed spots in potatoes or apples, and that they are often deeper and bigger than they seem to be at first. That as the decayed part has to be cut out before cooking, or eating, so the decayed part of the tooth must be cut out before filling; that the filling is to keep it from decaying any more; that medicine is put in to make it hurt less, etc. Answer his questions at any reasonable expense of time. This is only common courtesy to him as a child. He has the natural curiosity incident to his time of life. He wants to know, and as the party most interested he has a right to know the whys and wherefores of the operations of which he is the subject, as far as he is capable of knowing them.

I think a large share of difficulty in managing children, not only in the dental office but elsewhere, would be avoided, if people generally would remember that they have some sense and should be treated as reasonable beings. It occurs not infrequently that they have more of unspoiled reason and common sense than their elders who come with them. They cause less trouble, too, when free from the intermeddling, fussy third party. Usually, not always, difficulties are increased whenever the parent or other attendant mixes in.

An important matter often lost sight of is that of the first impression. Please call to mind how hard it has been in your own experience to set aside an unpleasant first impression of a person or a place. In fact it is doubtful if such an impression even if false can ever be quite erased, or cease to have its influence. The first visit of a child to the dental office ought to be, with rare exceptions, painless. The first operation should be a simple one easily borne, and the sitting should be short. Extensive decays should not be molested except for the relief of suffering, in which case the effort, if successful, places the doctor at once in the position of a benefactor.

The child who goes home from his first visit with no unpleasant association to remember, possibly with a shiny new filling of which he is proud, is pretty sure to be a tractable patient thereafter.

Next, truthfulness. One must never deceive a child or allow others to do so in his office. Perhaps I cannot do better than to quote here a paragraph or two from an unpublished lecture on the "Rights of Children."

"There are many whose chief idea apparently in dealing with children, is to find what seems to be the easiest way. They are too short-sighted to perceive that an easy way at the start may terminate later in a very hard road. Such people imagine that deceit is a time-saving and profitable exercise. When lying has failed, as lying always will, they wonder at their lack of influence, and it probably never occurs to them to look for the cause by introspection.

"A child is entitled to the truth, or nothing, from his parents, teachers, and all others to whom his interests are entrusted. Deliberate deception practiced on a child appears to me as abhorrent as a crime. It is something like an assassination of his moral life. It seems strange that anyone should fail to see that any trifling advantage so obtained is transient and most dearly bought. The child deceiver seems to be utterly oblivious of consequences. What can you do with a child without his confidence, and how long will confidence last after his discovery of the deception? When will people come to learn that straight out and out truth is the safest diplomacy in all the world? This doctrine, recently advocated by Secretary Hay, is just as applicable to little people as it is to little nations—or great ones.

Herbert Spencer says (Work on Moral Education): "The great error made by those who discuss questions of juvenile discipline is in ascribing all the faults and difficulties to the children, and none to the parents. On the average of cases the defects of the children mirror the defects of the parents."

So much for the child; now something about his teeth. The dentist should see to it if he has a family practice that the children of the household are presented for examination early in life—the third year is none too soon.

Parents should be diligently instructed as to the care of their children's teeth at home. Just as with adults, frequent visits will enable the dentist to discover decay in its incipient stages when necessary operations are simple and easily performed. A persistent effort should be made to overcome the general ignorance of parents with reference to the first permanent molars.

It seems to be one of the hardest things in the world to make them understand that the first permanent molar is not one of the deciduous teeth. One grows weary of the continued reiteration along this line, but there is nothing else to do.

And now a few words on the lesser proposition, management of the teeth. If one can manage the owner of the teeth this is not usually a problem of very great difficulty.

First as to extractions. It is a good rule that each deciduous tooth should be kept in place till its successor is ready to take its place, which is indicated usually by the absorption of the root or roots.

It has been our general theory that the presence of the deciduous teeth along with their incoming successors was necessary to the devlopment of the alveolar processes if not to the maxillary bones, to make space for a complete and regular arch. We have advised, and no doubt wisely in many cases, against extraction where an arch seemed crowded, saying that the crowding would assist in making room for a regular alignment of the teeth.

And yet we see instances often where the arch expands for the free accommodation of the permanent teeth despite the fact that the deciduous were lost early. Which leads me to remark that in my opinion there is danger of our being too conservative of badly decayed, pulpless, deciduous molars, with festering root sockets and alveolar abscesses. It is really of more importance at times to make a mouth clean than it is to sustain a theory of expansion. Of course we must remember the exceptional importance of saving the deciduous cuspids.

And a fight we must make at all hazards is to preserve the first permanent molars. The pictures of evil resulting from the extraction of these teeth can hardly be overdrawn.

I shall say but little about fillings or filling materials for the deciduous teeth. We are all familiar with the respective virtues of cements, gutta-percha and tinfoil. But I do wish to put in a plea for our new and improved non-shrinkable amalgams. It was true enough years ago, as often stated, that the amalgams then in vogue were almost worthless for the preservation of deciduous teeth. They shrank and leaked, so that decay went all around them working its own sweet will.

But in my practice of recent years the newer amalgams have been invaluable for the salvation of deciduous molars. Let me relate an example. Shortly after my coming to Los Angeles a physician spoke to me about his little daughter. He was quite distressed by the fact that her molars at the age of three and a half years were badly decayed upon their occlusal surfaces. They were so broken and sensitive that mastication was poorly done, and it seemed to the doctor that within a short time the child would have no molars at all.

When the child was brought to me a few days later I saw that the description had not been overdrawn. The case for a child of that age was indeed a serious one to undertake with any hope of success. But fortunately she was a child of unusual intelligence. I gave her the hand mirror to hold while I showed her the condition of her teeth. I said to her that if they were not fixed they would get worse and worse. The black spots would get bigger, her teeth would ache and ache and ache; they would soon get so bad that she could not chew her food, and then she would have stomach trouble, and she would not sleep well. I placed the responsibility of decision on herself.

I said, "It will hurt a little to have the teeth fixed, but you are a brave little woman, and I think you can stand it. We will not do more than just one each day. Will you have it done?" Her large dark eyes looked straight into mine and she said, " 'Ess, I'll do it." And she did.

The occlusal surfaces of some of the molars were three-fourths broken down. With sharp, thin, spoon-shaped excavators I lifted out the decay, and scraped the walls down to a moderately firm basis. I then went over them with a sharp round burr, touching very lightly, keeping the surfaces dry with air, but slightly warmed. Then treated for a few moments with carbolic acid and oil of cloves. All this time she used the saliva ejector, the use of which had been explained to her, she kept her mouth well open and permitted the presence of pieces of spunk on either side of the tooth. And, by the way, spunk is tolerated much better by the local nerves than cotton rolls or pads of any sort that I have ever tried.

Then I let the child rest. Next, after re-drying I took a small, keen-edged inverted cone bur, and with quick, light, intermittent touches made grooves at all available points for the retention of the building material.

This was Fellowship Alloy, which I mixed with a slight excess of mercury and made pliable by brisk warm rubbing with the finger. The final pressure was made with broad-faced instruments that covered the whole face of the filling. Cotton pressure and rubbing finished the edges. Adaptation to occluding cusps was made at once before the filling hardened. Gold cylinders were then pressed gently over the amalgam to absorb excess of mercury.

I am partial to gold over tin for this purpose, the difference in color showing better what is taken up, and I think the finish is smoother.

With a special sitting for each tooth they were all gone over, and every occlusal surface faced with amalgam. And that child was so gritty and interested she would not admit that she was hurt at all. That was nearly three years ago. Several additions have been made to those fillings, but not one has been lost. Mastication has been effective and the child has not had a toothache. I may add that for the lower molars I was able to use the dam long enough for the insertion of the filling. With what other material could such results have been obtained?

Probably half or more of fillings demanded in deciduous molars are compound-occluso-distal or occluso-mesial. Failures result in many of these cases because a matrix is not used. The most convenient form is the thin blade with a handle, which any one can make for himself.

Having all in readiness, cavity prepared and stopped for the moment with cotton or spunk, the material is mixed, and placed in readiness; then quickly cotton is removed, matrix placed and held, the filling is inserted and firmly condensed with a burnisher large enough to cover nearly the whole surface. The reverse or handle end of an instrument is often most available for this purpose.

In case one fears the near proximity of amalgam to the pulp or where the dentine is extra sensitive, my favorite practice is to carbolize the cavity, varnish, fill first half way with cement, and follow with amalgam. This being pressed firmly to place displaces the cement except a mere lining. This applies to the compound cavities. In simple occlusal cavities, but deep, one may let the cement constitute half of the filling.

To insert a good filling of any plastic material—yes, of anything except cohesive gold—there must be four walls. If a wall is absent it must be supplied by means of a matrix.

To secure the best results in the management of children one must be willing to sacrifice time and energy, and to exercise unlimited patience. The practice is not as a rule pecuniarily very profitable, i. e., in immediate returns. But for a young man who is building up a practice I know of no better investment than to secure the confidence of children together with the good will of their parents. There is in children, as compared with their elders, what insurance men call the greater expectancy, i. e., longer life and more to do.

The young man who imagines that he can slight the demands of the little folks, hoping to get them later, is like the boy mentioned by the late lamented Josh Billings. He caught a young rabbit, and after looking it over concluded that he had no use for it. So he said, "I'll let it go and catch it when it gets big." Said Josh, "He is looking for that rabbit yit."

As many of you know, this subject has been one of special interest to me for many years. I believe that I gave the first regular stated course of lectures on the care of children's teeth that was ever delivered in a dental college. This was in the Chicago College of Dental Surgery from 15 to 18 years ago. Such a course should be included in every college curriculum, but usually, I think, the matter receives but incidental mention.

With the hope that this paper, written hurriedly at odd moments, may elicit a profitable discussion, it is cordially submitted.

CEMENT LININGS.*

By J. J. Reed, D. D. S., Beloit, Wis.

Cement as a lining may be used for anchorage. It may be used to secure perfect adaptation, or as a non-conductor. It may be used to strengthen weak walls or to prevent discoloration by amalgam. It may be used as an anchorage to avoid cutting, for retention in sensitive dentine. It saves time for both patient and operator. As a lining it prevents shrinkage of amalgam from walls of cavity. It may be used with amalgam or gold. It is really a combination filling used for the purpose of getting the good qualities of both materials.

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*Read before the Northern Illinois Dental Society.

Quite a few have written on the subject, but it does not seem to be very generally practiced. It is so simple a thing, that perhaps it has not seemed worthy of mention. At first thought it might seem to have objections. They say, "Won't the cement dissolve out at the margins?" Or, "Will it hold the fillings? Is the anchorage sufficient?"

One writer shows this when he says "Having passed through all the stages, beginning with ridiculing the method, I have almost reached the point where I use it exclusively." It certainly has advantages. Gold and porcelain inlays have proven a few things in regard to cement, such as strength of attachment, *adaptation* by which it prevents recurrent caries or undermining a filling by decay, and that the cement does not wash out to any appreciable extent even if it did come to the cavity margin, which is not necessary under a filling.

This method gives adaptation, by which we mean a perfect fit, a water-tight joint. It is easier to adapt a plastic than gold Cement, when adapted, becomes attached or sticks to cavity walls. Amalgam may be perfectly adapted, but the trouble has been that it would shrink, leaving an open joint. Gold must be built pellet by pellet, and how difficult it is to make a perfect joint out of so non-plastic a material.

No one material is perfect, so by a combination filling we get the good qualities of both. Cement alone has many good qualities, such as adaptation and adhesiveness, which give anchorage, but we all know how it wastes away. Amalgam is permanent and easy to insert. By combining cement and amalgam we get anchorage, adaptation, permanency and ease of manipulation, and the cement lining gives some non-conductivity. The cement overcomes the shrinkage of the amalgam. It binds it to the walls.. It may change form on its free surface, and if amalgam has a certain amount of flow, why is it not a good feature in contours, as the pounding of mastication from opposing teeth would tend to emphasize a contour and keep that perfect knuckle which is so desirable?

The strength of cement, seems to be in its setting under pressure, which gives a close adaptation. There need be but a film of cement under the filling, and the beginner in this method must learn to use a minimum amount of cement. Our inlay experts think that anchorage depends on a perfect fit, which necessitates the least cement possible.

We all know the strength of attachment of cement, and that it is sufficient. It is easy to make a combination cement and amalgam filling that has all the attachment of cement, and more so, as cement will flow from under an instrument when in any bulk, but a very thin film covered with amalgam under the pressure of the instrument cannot get away, and is forced into closest contact with the walls.

The best place for the cement-amalgam filling is in proximo-occlusal cavities in bicuspids and molars and in buccal cavities.

It gives anchorage without cutting to retentive shape, and thus saves time for the operator and pain to the patient. There is always a demand for real painless dentistry, and any method that approximates it is welcomed by the patient, and gives the operator a reputation for being careful. In making amalgam fillings, mix amalgam as usual. The cavity being dry, make a small mix of rather thin cement, and line the cavity walls. Place a pellet of amalgam in the cavity and spread it over the cement, pressing and rubbing it into the latter, crowding out the excess and forcing it into close contact with the cavity walls. Add more amalgam until an all metallic surface is secured, then clear extreme margins of any cement, adjust matrix and proceed as usual.

After some experience with the cement-amalgam combination I was satisfied with the anchorage qualities and thought of using it with gold. The gold pellets could be crowded into the soft cement, which after hardening could be built on with gold, but it seemed to me there would be firmer union if the gold could be started in the cement while still soft and keep right on building, but the pellets would tip and move, and after some trials it was given up. These of course were experimental fillings made out of the mouth. I tried Watts' crystal gold, but it tipped too much also, and not till I tried Solila gold did I have much success. It is non-tipping. The plugger perforates it and presses the particles into the cement, and after we have a surface of gold the filling can be continued with any kind of gold desired.

The cement should be a very thin layer of a creamy mix. The sticky qualities of the Harvard are quite desirable, but any good cement will give success. If we have just a thin layer of cement, the gold will be almost in contact with the walls and we seem to get a greater pressure on it, which gives greater adhesion and it seems to set more rapidly.

Dr. Corbett's method is to make several mixes of cement, using pellets. He lines part of the cavity and covers with gold, then another part and so on till cavity is all lined, so that in larger cavities he may make three or four mixes of cement. He is an enthusiastic advocate of this method. It requires skill to make a perfect union of gold to cement. The handicap with gold work is room to manipulate. One can rub amalgam in at any angle, but gold must be worked at nearly a right angle. This necessitates considerable hand pressure at times.

The larger the cavity surface, the greater the anchorage. I never feel as perfectly sure of a gold anchorage as with amalgam, nor can I get as good results with test fillings out of the mouth. However, its use is limited as compared with amalgam. The gold and porcelain inlay are laying the gold pluggers on the shelf, so it will be used in cases of medium size fillings, as in the very small gold fillings it is not usually difficult to secure sufficient anchorage, and in cases of large fillings we use the inlays. In case a gold filling fail from anchorage it can be cemented in and used as an inlay.

In taking up any new method, one should do some experimental work on it and master the technique, before attempting it in the mouth. Make some amalgam and gold fillings in saucer-shape cavities in a tooth brush handle and then pry them out to find the security of the anchorage. This will give confidence in practical work. Too many condemn a method without trying it, and this method at first sight would appear a slipshod one, only fit for incompetent operators. In fact, it is a method that requires neatness. One writer says, "The objection that this practice leads to careless and rapid operating because of its facility, need hardly be considered by careful and conscientious men. The greatest success by this method cannot be obtained without the utmost care and precision in every detail of the operation." Those who take up this method speak good words for it, and one operator has said that nothing had helped him so much in his practice as this.

PROCEEDINGS OF SOCIETIES.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held March 16, 1903, at the Sherman House, with the President, Dr. Fred B. Noyes, in the Chair.

The subject for discussion was "Nitrous Oxide Anæsthesia."

Dr. F. M. Richardson:

Mr. President, Ladies and Gentlemen—I had hoped this evening to be able to give a clinic, as two patients promised to be present. One, Dr. Hewitt, informed me at the last moment that he would not be able to attend, on account of sickness. The other, a lady patient, changed her mind at the last moment. I was to have extracted under nitrous oxide anæsthesia fourteen teeth for her. In the absence of the patients I will give you a description of some of the clinics I have given, and of the operations that have been performed under nitrous oxide anæsthesia.

I wish to talk to you, first, about the Hurd outfit, and later on, the Richardson. For want of a better term, I will designate the two methods of giving gas as the old and the new. By the old method I mean the old style inhaler, where both the mouth and nose are covered, the patient getting nothing but the gas, the anæsthesia lasting from thirty to forty seconds; also, the still older method, where a tube is inserted in the mouth and the nose held.

Some two years ago Dr. Hurd, of Cleveland, O., invented a new outfit for giving nitrous oxide gas. Prior to that time it was taught by all teachers in our colleges that no air, or very little air, should be admitted with the gas. I have been using that outfit in my practice for the last two years, and in justice to Dr. Hurd I must say it is excellent. It has some defects, and within the last few months I have endeavored to overcome them. One of them is this: We meet quite a few patients who cannot breathe through the nose, and consequently the outfit is practically worthless, and you have to fall back on the old outfit, and it is necessary to keep the two in the office. I have found quite a few such cases. It was embarrassing for both myself and my patients, so I determined to remedy this defect, and I think I have succeeded. I have been using my outfit for the last two or three weeks, and I am much pleased with the results.

Another defect of the Hurd outfit, and an advantage in mine, is that his certainly takes more gas than the old method of giving it. On an average, it takes from twelve to fourteen gallons of gas for each administration, costing about 35 cents, and that is quite an item, if one is giving gas to ten or twenty patients a day. I would rather get the results I have been able to obtain with the Hurd outfit, taking plenty of time in all cases, whether three, ten, twenty, or thirty minutes. The result is that I have had very much better results than with the old method, where I had to hurry in order to get through with the operation in thirty seconds.

This evening I had seventeen teeth to extract for a patient, and I am sure I would not have been able to remove them by the old method. It was a hard case and a bad patient, but with my outfit I put her to sleep very easily, and had plenty of time to change forceps, etc., and the operation was a complete success and the mouth was left in good condition. The result is that the tissue is not badly torn and the process is not broken down. I believe, if the extraction is neatly done, the absorption is very little, if any, and that a temporary plate can often be made a permanent one. I believe it bad practice to unnecessarily break down the process in any mouth. Of course, sometimes it is necessary, but I am speaking now of an average case. These are the two weak points with the Hurd outfit: The amount of gas consumed, and the length of time it takes to put the patients to sleep. It takes longer, because they are getting air all of the time, and particularly in catarrhal conditions, where the patient cannot breathe through the nose freely.

With the old outfit your patients go to sleep more quickly, and with less gas. You will occasionally meet with a failure. I have met with a number of failures with the Hurd outfit, on account of catarrhal conditions, but you rarely meet with a failure with the old style outfit. With it the patient is put to sleep in from thirty to forty seconds, whereas with the Hurd outfit it takes from a minute and a half to two minutes. One can manufacture his own gas at a cost of five cents for each administration, which is a vast difference between thirty-five cents, where you are doing much work. But I have felt I would sooner pay the difference and get the results I have been able to obtain with the Hurd outfit than to go back to the old method. With the old outfit, if anæsthesia was continued too long, the patients invariably grew cyanotic. Their appearance is frightful, and to those who are not accustomed to it, they never want to see the sight again. It is true, very few accidents have resulted from its use, but I never expect an accident with the new outfit, for the reason that the patient gets all the oxygen necessary. So, I think, from the standpoint of safety, the new outfit has advantages over the old.

I am going to explain briefly my new outfit. This is a rough model. I have just secured my patients, and I want to show you the difference between the Hurd outfit and the Richardson outfit. This (indicating) is detached from the standard, this being the gas bag and this the nosepiece. It is put on in this way (illustrating on himself). The prop is put in the mouth.

I ask my patients to move their finger slowly up and down just as long as they can, and when the finger stops moving, they are ready to operate upon. This acts in two ways. It gives my patients confidence; they realize, in a measure, that they control the situation, and they forget their own troubles in an effort to keep their finger moving.

Within the last few months I have added to my office a music box, and as I start the gas, I likewise start the music box. Prior to that time the patients sometimes screamed while under the influence of the anæsthetic; now they rarely do. It is undoubtedly true that music has charms, and they go to sleep in a far happier frame of mind, having few bad dreams. As a result they seldom scream or struggle under it. I do not think I have one patient scream to-day, since using the music box, where I used to have twenty. I bought the best music box I could, but it plays one unfortunate air, namely, "There's a land that is fairer than day." That is not very soothing to them, but I cannot cut it out very well. (Laughter.)

In my new outfit I have placed a valve, with which I can control absolutely the amount of air I wish my patient to get. This valve screws out and in easily, and has a number of large holes. Some patients require very much more gas than others; some require much more air. With this valve I am able to regulate perfectly the amount of air and gas I wish to give each patient. I shut this off entirely in some; in others, partially, depending upon the way in which the patient is taking the gas. This little valve is a decided advantage over the Hurd outfit. When a patient cannot breathe through the nose, I simply open the valve in this way (illustrating), and attach it at this point (indicating). Then I give the patient gas, either through the mouth or through the nose. If I wish to give it simply through the mouth, this (indicating) is detached very readily and slipped right on here, and I give my patient gas through the mouth. This is of special use for the surgeon in removing nasal polypi, and he can continue the gas through the mouth while he is operating on the nose, so you see with this outfit I am enabled to give gas either through the nose or mouth alone, or both together, and in that way I have overcome all the shortcomings, I believe, of the Hurd outfit. It also takes less gas, because one controls the air supply.

Do not understand me to say that I believe the Hurd outfit is not a good one, because I do. I feel that it is an outfit of great value, and has been of great value to me, but I have realized that it has its weak points, and I have tried to overcome them, and I think I have succeeded, with my outfit.

I want to mention briefly a few clinical cases which may be of some interest to you.

I was called on the North Side to give an anæsthetic for Dr. Peterson. I gave the anæsthetic while the doctor drilled into five anterior teeth which had been dwarfed from infancy. He removed the live pulps, put in temporary stopping, and then I took my forceps and extracted seven teeth. The whole operation lasted about twelve minutes. It was absolutely painless. The young lady came to promptly as soon as I shut off the gas, and reported that she had a pleasant time at school.

Not long ago I gave gas for Dr. Morgenthau, a prominent physician in this city, while the doctor took the dental bur and drilled up into the antrum of Highmore. I afterwards extracted an upper third molar. This operation lasted about eleven minutes.

I have given gas for Dr. Crutcher, a surgeon in this city, on several occasions. Once while he amputated a finger; on two occasions while he reduced a dislocation of the shoulder joint, carrying the patient to the stage of muscular relaxation, so that he was enabled to reduce the dislocated shoulder. These operations lasted, I think, about eight minutes. On another occasion I gave gas for Dr. Keefe, who drilled up above the cuspid tooth and curetted a lot of necrosed tissue. The operation lasted eight or nine minutes, and was a perfect success.

Two weeks ago I was present and took general charge of the anæsthetic for a lady, the wife of a dentist in this city, while some tubercular glands of the neck were removed. The operation lasted twenty-five minutes, and was a success. A few weeks ago Dr. Smith gave gas to an infant, three weeks old, upon whom circumcision was performed, the operation lasting fifteen minutes, with absolutely perfect results.

The nearest failure I have ever had with the Hurd outfit during prolonged anæsthesia was when I gave an anæsthetic two or three months ago for Dr. Bentley. He opened up over the central, lateral and cuspid teeth, for the purpose of draining a large pus pocket. I put the patient to sleep and the anæsthetic worked nicely for about seven minutes, but during the latter part of the operation the patient seemed to feel pain. I was able to keep him under the influence of the anæsthetic for five minutes more, until Dr. Bentley completed the operation, but the patient told us that he felt considerable pain during the latter part of the operation. That is the nearest to a partial failure I have ever had with this outfit. But I have had some complete failures. I have been utterly unable to put some patients to sleep. A year or so ago a lady came into my office with this history: Dr. Coulter, a specialist in New York City, had given her gas twice, without any effect, and her dentist recommended her to come to me. She was as good a patient as ever sat down in my chair. At first I used the Hurd outfit, using about forty gallons of gas, without any effect. I then used the old outfit, and gave her about as much more, with the same result. I might as well have given her fresh air. I dismissed her for that day, and repeated the anæsthesia the next day, with no effect. She gave up, and on another occasion she took gas without any trouble whatever, and had four or five teeth extracted. I do not know how to account for that.

I once gave a boy fifty gallons of gas, using both outfits, with no effect. I dismissed him, and made an appointment for the next day. He came; I gave him gas, and never had a patient go to sleep so easily in my life. This must have been due to a difference in the physical condition of the boy, and yet there was apparently no difference. He did not struggle against taking the gas. These are things I have never been able to explain, and I do not know how to account for them. I mention them as peculiar cases.

I do not think that the Hurd outfit, nor the Richardson outfit, nor any gas outfit, will ever be used extensively for major operations. In minor dental and surgical operations these outfits ought to be used a great deal more than they now are. When one has but 30 seconds in which to operate, he must necessarily be a very skillful operator. But few possess Dr. Slonaker's skill. I know Dr. Slonaker is very successful with his method of inducing anæsthesia, and perhaps he would dislike to make use of any other outfit or method. But all operators are not as skillful, and we are ever ready to adopt something that will give us more time, and so, for one, I am glad indeed of a new method for giving gas.

DR. GEORGE B. PERRY:

What is the advantage of putting the gas bag so near the cylinder? It would seem to me that the noise of the gas escaping would be uncomfortable to the patient.

DR. RICHARDSON:

As a matter of fact, there is very little noise. There is just enough noise to let me know that the gas is acting properly. I have never found that this noise disturbed patients. The noise is made in coming from the cylinder, and not from the gas bag. However, that is a good suggestion. I would be glad to have other suggestions from the members, so that, if possible, I can incorporate them in this outfit.

A MEMBER:

Have you used the vitalized air attachment, or the chloroform attachment?

DR. RICHARDSON: Yes. I did in certain cases. I do not think it is necessary, but I do believe that chloroform saves gas and makes the anæsthesia a little more profound. I gave a clinic last winter at the Alumni Association meeting at the Northwestern University Dental School. I operated on forty-two cases that afternoon, without a failure of the gas. It simply worked perfectly. There was not a patient who made a sound or move. I was under the impression that I was using chloroform with the gas during that entire clinic. I was afterwards informed that my assistant had spilled the chloroform, and I had given the entire clinic without it. During an administration of gas, lasting some three minutes, a patient will not absorb more than two drops of the chloroform, and about ten drops is all I have ever put in my cup for one day.

Dr. Perry:

Have you ever had any failures from chloroform?

Dr. Richardson:

I never had but one partial failure, and I have forgotten whether I used chloroform in that case or not. About two weeks ago Dr. Hewitt and I gave a clinic at the Chicago College of Dental Surgery. He gave chloroform, and I extracted the teeth. I took out some sixty-five or seventy teeth that morning for eight patients. I removed fourteen teeth for one lady patient. There was not a patient who felt any pain. They all knew that their teeth were being extracted, but there was no pain. I do not think the dental profession uses Dr. Hewitt's chloroform method as often as they ought. I have used it a number of times. Occasionally I have a patient who is accustomed to taking chloroform, and will not have anything but chloroform as an anæsthetic. In such a case I have given chloroform after the method of Dr. Hewitt, and in every case it has worked satisfactorily. I think the dental profession are needlessly alarmed about the use of chloroform, and that they do not use it as they should.

Dr. J. W. Slonaker:

Members of the Odontographic Society: The short paper here presented will not include the physiological action of nitrous oxide—only a few remarks from the practical side of the subject. The use of nitrous oxide for dental purposes was inaugurated by Dr. G. Q. Colton, in 1863, in New York City.

Dr. Richardson told you of a new method of giving nitrous oxide, but I have not discovered any way as good as the old way.

Pure nitrous oxide, made from pure nitrate of ammonia, and made in your office by someone competent to make it (and much depends on the manufacture of the gas), and I can produce anesthesia more quickly and keep my patients under the effect of the gas long enough for ninety-nine per cent of the operations I have to perform. I have so few unpleasant effects, such as sickness, etc., that it practically amounts to nothing. When I wish to prolong the anesthetic effect, I carry my patient thoroughly under the influence of the gas; then admit a small amount of air, allowing them to partially recover consciousness; then I give them the gas full strength, carrying them as far as judicious. By so doing I am enabled to perform more extensive operations.

The administration of nitrous oxide to persons affected with heart trouble is admissible, provided the person's general health is good. To those with kidney disease, nervous prostration, and general nervous disorders, I find no difficulty. There is only one class of persons to whom I refuse to administer the gas. I refer to those who have had a stroke of apoplexy, and I should consider one criminally liable who should knowingly give it under those conditions, because the action of nitrous oxide dilates the brain and it would protrude from an opening made in the skull, showing that a rupture might easily occur.

In cases of pregnancy I consider it perfectly safe.

Persons having a drug habit, or inebriates, should be handled with great care.

I want to say a few words in relation to the administration of nitrous oxide for prolonged minor surgical operations. My experience extends over some twenty-seven or twenty-eight years, and in that time I have given nitrous oxide as long as ten minutes. I assisted in one case for an amputation of the femur, in another case for amputation of the foot, and frequently in other cases, as the amputation of fingers and toes, also numerous other small or minor surgical operations. I mention that because Dr. Richardson spoke of its use in major operations.

There is a theory that I have been thinking of for a number of years. It is only a theory, because I have been unable to find anyone who could give me accurate statistics relative to the operation of morphine on the brain. We know that morphine, opium, etc., contracts the pupil of the eye. Now, those patients who are addicted to that habit are the most difficult to whom to administer nitrous oxide, and I have reasoned it out in this way, that the operation of morphine on the brain contracts the coats of the arteries and veins of the brain. I am speaking of those who use it continuously, taking certain quantities every day. The operation of nitrous oxide dilates the brain tissue, allowing, as I said a few minutes ago, the brain to enlarge to fill the entire skull cavity. Now, when a patient comes to you who is addicted to the use of morphine, that being, of course, my theory, the brain is abnormally contracted. Those patients will take all the way from twice to three times as much gas, and still remain conscious, but as quick as the wink of the eye they lose consciousness, and the symptoms produced are of such a character that they are really alarming. Given two or three breaths of air, they are conscious again, or semi-conscious, so much so that it is utterly impossible to do any more than to extract, say, three or four teeth, after which you have terrific screaming, fighting and kicking—crazy actions. In the cases of those who are addicted to the use of liquor (I am not speaking of men who take a drink before they come to your office, but men who drink from ten to fifteen drinks of whisky a day), their brain is enlarged. There is undoubtedly an inflammation of the brain. You administer gas to such men, and very few breaths of pure gas are sufficient to place them in an unconscious condition. Still they recover quickly from the influence of the gas, because they have had so little of it, and consequently you have very little time to do anything for them. In speaking of that, I am reminded of a case that came under my observation some years ago, one that I saw with Dr. Thomas, of Philadelphia. The patient was a man who had taken a great deal of liquor. He sat down in the chair, and absolutely did not take one breath of gas, but held his breath for something like thirty seconds, after which he lost complete consciousness from over-stimulation. His teeth were extracted, and he told us that he thought nitrous oxide gas was the most glorious anæsthetic that he had ever taken.

I have not found it necessary to use anything but the old method. The inhaler I use is the mouth inhaler. I have only seen a partial illustration of Dr. Richardson's method, and although I should like to have seen more of it, I have not had the opportunity to do so. If there are any questions any of the members would like to ask, I will try to answer them.

Dr. George B. Perry:

Are you guided by the motion of the fingers of the patient, as indicated by Dr. Richardson?

Dr. Slonaker:

I pay no attention to motion of fingers, but I do to the breathing and appearance of the patient, and everything that goes with the administration of nitrous oxide. The cyanotic condition has nothing to do with telling whether a patient is unconscious or not. Frequently in anæsthetizing patients, indications of cyanosis are hardly noticeable.

Dr. Pruyn:

You depend upon the color of the lips, etc.?

Dr. Slonaker:

Yes, I want to see the condition of the lips. I want to see how the patient is breathing. I guard against any noise in the room during anæsthesia. If there is, it will make it impossible to hear, and quite often we have patients who are old and delicate, who breathe so slowly and quietly that you can hardly hear them do so. In administering nitrous oxide the effect is cumulative. The patient can breathe, say, a few breaths of nitrous oxide and be perfectly conscious. You can take the inhaler away from the patient, and in fifteen seconds or so the patient is unconscious. If I have a large man to anæsthetize, I treat him as I did one this morning, one weighing 275 pounds, plethoric. I gave him gas, and when I removed the inhaler he was conscious. I waited for about ten seconds. He lost consciousness. I extracted his teeth. He came to, and did not know anything about it. If I had given gas until he was profoundly under its influence, I would have made too marked an impression upon his nervous system. It is largely a question of experience, and as for extracting ten or fifteen teeth, the greatest number of teeth extracted by me during one administration of nitrous oxide is twenty-seven. I frequently extract nineteen or twenty, so that I have not found it necessary to use any other method. Of course, occasionally we have peculiar patients, as Dr. Richardson says. We have patients who are difficult to anæsthetize. However, I have never seen a patient, unless it was one addicted to the morphine or opium habit, that I could not put under the influence of nitrous oxide profoundly.

I have not met with any failures in administering nitrous oxide gas, so I do not see any reason for changing to a new method.

A MEMBER:

What would be the dangerous symptoms if the anæsthetic is carried too far?

DR. SLONAKER:

I do not know exactly, but I suppose there would be paralysis.

DR. A. B. ALLEN:

When I was called upon several days ago in regard to writing a paper for this meeting, the time was so short that I decided not to write but to tell you what little I know directly. Having been associated with Dr. Slonaker for eight months, I can heartily indorse his method. I do not see any reason for changing to the Hurd method. However, in my own practice, I shall have the Hurd apparatus or outfit, and use it if I think it is necessary for prolonged anæsthesia, but, as Dr. Richardson has said of the method, heretofore a great deal of gas has had to be used, and it is slow. Under the old method you have the entire facial expression. You can see every feature, and the gas can be given quietly, with no noise as from a cylinder. You are able to tell from the start the condition of the patient. I do not see any good reason for the use of the hood, and I shall use *this* inhaler directly, as Dr. Slonaker does. The majority of dentists do not realize the difficulty occasionally connected with the extraction of teeth. I did not until I became associated with Dr. Slonaker. For instance, a great many times we may have an impacted third molar, where the operation necessitates, possibly, a cutting away of bone to save the second molar. I do not think one dentist in a hundred can fully appreciate such points until he is placed in the position I was. I couldn't, before that time, and I had been in general practice for eleven years.

I tried to find out during the fifteenth anniversary clinic here if there were any new and valuable methods of giving anæsthetics, and I was unable to find anything that impressed me more favorably than the old method, because if you are going to do any operating at all you simply want to get the patient under anæsthesia as quickly as possible, and with the best results. Of course, with the Hurd method it takes longer to do this, and you use a great deal more gas.

DR. DITTMAR:

Will you explain in detail the method of Dr. Slonaker?

DR. ALLEN:

Dr. Slonaker is here, and he can do that better than I can. However, I will say that he has a small gasometer, which holds about fifteen gallons. He uses an inch and a half hose, and the nearest description to the mouthpiece would be an old-fashioned wooden spigot. There is a valve at the end, and the mouthpiece is an inch and three-quarters. It is oblique, so that you can compress the lips together. There is also a valve at the other end, which enables you to check the flow of gas, so that the patient can either inhale or exhale. The gas in this way can be given freely, and plenty of it, and there is no reason why you cannot put a patient under the influence of gas quickly. I used to use the old-fashioned hood, which extended over the nose and covered up the features, but after having used the other method you will never want to use that, because it covers up the face. In the case of a child, it is an obstruction, more than ever, and you cannot see the features as you ought to. In such a case you should have perfect control of the little patient.

DR. KAMM:

Do you keep the nose open?

DR. ALLEN:

The nostrils are pressed together, and the lips also, on either side, so that you admit no air unless you want it. I have seen Dr. Slonaker put patients under the influence of gas and then allow them to take five or six breaths of air and partially recover, then put them directly under it again, thus getting the prolonged anæsthesia that Dr. Richardson obtains by his method.

DR. FRANK H. SKINNER:

I formerly used the old hood, and I tried the mouthpiece which Dr. Slonaker uses, but about a year ago I began to use the Hurd inhaler, more for operative work than for the extraction of teeth, and I am able to determine the amount of gas my patient is taking.

I can keep patients under any degree of anæsthesia I want by inhalation. Sometimes I do not use it for two or three weeks; then, again, I may have occasion to use it two or three times in one day, and I must say that I like the Hurd inhaler for operative work. It is an advantage over anything we put in the mouth, because we have to use a rubber dam to remove a pulp, or anything of that kind. Dr. Richardson has an attachment made that goes over the mouth. I have given gas a number of times for operations that were performed on the nose, keeping the patient under anæsthesia for fifteen or twenty minutes, so that the surgeon who was operating on the nose could go ahead with his operation.

Dr. Allen:

For the dentist who has to get an apparatus, and requires one in his office, possibly the Hurd method is a good one, but for anyone who is going to make a specialty of it and extract a great many teeth, the other method is preferable.

Dr. Skinner:

I can keep a patient under the influence of the anæsthetic as long as I want to with the Hurd outfit. I have one patient I cannot anæsthetize at all.

Dr. F. W. Stephan:

I do not like to have a meeting of the Odontographic Society discuss the question of nitrous oxide gas, without bringing up the method of Dr. Frederick Hewitt, of England, who uses nitrous oxide and oxygen. That is, he uses pure oxygen instead of air, as is used in the Hurd outfit. By this apparatus the oxygen may be controlled in such a way as to regulate it to any amount. We can give pure oxygen or we can give pure nitrous oxide, or we can give any variation in proportion between them. It is often the case that patients vary as to the amount of oxygen required, and the advantage of giving the pure oxygen, over air, is in the fact that the gases other than oxygen which compose the air do not interfere with the admission of the nitrous oxide. In other words, we can give more nitrous oxide with a certain amount of pure oxygen, than we can when administering it in the form of air. The character of the anæsthesia produced by this mixture is superior to that of nitrous oxide alone, in that it is more like natural sleep, the asphyxial symptoms being absent. This method is especially good for prolonged anæsthesia. The first time I heard of this anæsthetic was when my brother, Dr. John Stephan, of Cleveland, administered it in a case where an abdominal operation was performed. The operation lasted forty-five minutes and was a perfect success. The patient to whom it was administered had heart trouble, which forbade the administration of other anæsthetics. This mixture has also the same effect as that spoken of by Dr. Slonaker; when he gives a little air and then nitrous oxide again, the anæsthesia is twice as long after the hood has been removed. I consider this the most valuable apparatus for giving nitrous oxide that is now on the market.

Dr. Frank H. Skinner:

I have been thinking for some time of using the Hurd outfit, and giving gas from the gasometer, the same as the tank which Dr. Slonaker uses, having an automatic valve, so that when a patient inhales the gas it will be drawn from the gasometer, and when it is exhaled the gasometer is closed. There is undoubtedly a good deal of gas wasted by using the Hurd outfit at the present time. It is crude in that respect. The valve exhibited and demonstrated by Dr. Richardson is an excellent thing. He is enabled to control the air. I have had a similar idea in mind. I believe there should be some device perfected by which the flow of gas can be perfectly controlled, and the amount of air the patient takes regulated.

Dr. F. M. Richardson:

In regard to administering oxygen with nitrous oxide, I agree with Dr. Stephan that it is a most excellent way to give the gas, but I have always thought that oxygen from the air, as used with the new outfit, is much cheaper than oxygen from cylinders at $2 for forty gallons. I do not think it works any better. I prefer the old method rather than the cylinder oxygen.

Dr. A. W. Harlan:

There is one question I would like to ask, and that is, if any of the gentlemen who are professional anæsthetists have ever had any accidents from the administration of nitrous oxide gas, and if they have had them, how did they meet them? A good many dentists give nitrous oxide from time to time, and a mixture of choloroform and nitrous oxide, and if they were suddenly to face disaster, they should know how to meet it. I consider that the administration of chloroform to produce partial anæsthesia is the most dangerous period of anæsthesia that can be exhibited. The Hyderabad Commission, presided over by T. Lauder Brunton, in its study of the effect of chloroform anæsthesia in animals and man, came to the conclusion, in effect, that profound anæsthesia with chloroform was safe anæsthesia, when the subject was suitable for the exhibition of that anæsthetic, and that incomplete anæsthesia was dangerous at all times.

Dr. Richardson (closing the discussion):

In reply to Dr. Harlan's question with reference to collapse, I have never had such a case in my practice. However, one can never tell how soon he will have. I keep a hypodermic syringe ready, with 1-60 of a grain of strychnia, and repeat, if necessary. Then I have globules of amyl nitrite, aromatic spirits of ammonia, etc. I would resort to artificial respiration, and I would use hot salt water enema per rectum or other measures for resuscitating a patient, if necessary. I have never had occasion to refuse to give nitrous oxide to anyone, but I would absolutely refuse to give it to a person who was an habitual user of cocaine or morphine. I have had a few patients to whom I have given anæsthetics for operations, and some of them have broken up the furniture in the office on two or three occasions. I learned later that they were cocaine or morphine fiends. So that I do not want any more of that kind of patients. As a rule, they are the biggest liars on earth, and you will find that out when it is too late. I would not give nitrous oxide gas to habitual alcoholics. I would rather have them take several drinks, and then operate on them, without giving any gas.

CHICAGO DENTAL SOCIETY.

Regular meeting held October 6, 1903, the President, Dr. Donald M. Gallie, in the Chair.

Dr. Garrett M. Newkirk, Los Angeles, Cal., presented a paper entitled, "The Care of Children's Teeth."

DISCUSSION.

Dr. J. N. Crouse:

I did not suppose that the author would limit himself to the discussion of the care of the deciduous teeth. If he had included in his subject the care of children's teeth, and then got along from 7 to 12, we would have had an interesting discussion. I do not consider it very much of a task to take care of the deciduous teeth of a child. If you know enough to please the child you will have no trouble. There is very little pain connected with the work, and it does not require much skill. But get along a little further; take the young girl just entering puberty; overgrown; over-taxed at school; delicate in her organization; teeth wasted away; take that kind of a case and manage it properly; bring that child up to maturity with the teeth all in the mouth and the pulps alive; masticatory apparatus in good condition, and you have accomplished a great task.

I used to take more radical views of these cases and make more thorough preparation than I do now. I fill these teeth with amalgam because I can do that without such complete preparation. Not with a view to permanency, because there is nothing like permanency in that kind of a mouth until it is immune to destructive agents. There are many children in whom you cannot put permanent fillings.

Yesterday a lady brought her little girl to me to have her teeth looked over. The mother told me just what she wanted me to do and how she wanted me to do it. She brought all the family and a few outsiders to see that I would do it right. I sent them all home, except the patient, filled the lower first bicuspid with amalgam, and sent the child home. Sometimes mothers are a help, but as a general rule I do not want them there. I have not seen the child yet that I could not manage. I can do better work when the mother is not there than when she hovers right over the child.

A short time ago I had a case brought to me from out of town to see whether I would take charge of it. Accompanying this little patient were the mother, aunt, governess, trained nurse and a companion. I examined the case and said that I would take care of it under certain conditions. The conditions were that the patient was to come unaccompanied by anyone except the young woman who usually took care of her, and that the rest of the family go back home. The next time they all came back again and I sent the whole crowd home with instructions not to come back. Finally the mother came to my way of thinking and now I have the case all fixed up.

As to details. It is well to put emphasis on integrity, earnestness and lack of deceit. Do things in such a way that no one can throw it up to you afterwards and shame you. But you cannot detail just how each child should be treated. Some children I ridicule; others I scold and some I coax. You cannot lay down any rule. You must have sense, energy, determination and perseverance. But have your way about it or none at all.

I have been thinking about the matrix Dr. Newkirk described. I know that there are hand matrices, but do not know how you could extend it to the degree that you can put in amalgam.

DR. JOHNSON:

It is a broad, thin instrument at the end of a handle that can be curved in any direction. Insert it between the teeth and hold it there with one hand until you have put in your amalgam.

DR. CROUSE:

I like to have mine firmer. I do not like to hold a matrix with one hand and work with the other. I want to use both hands.

As to the extraction of deciduous teeth: I think that sore roots had better be removed. It is better for the mouth and better for the patient's health. Sometimes I avoid doing that because I do not want to subject the child to that kind of an operation. I have other things that I want to do. I cleanse the teeth and leave them there because I do not want that child to have a dread of coming back to my office. It is a trying ordeal all the way through for both the patient and the operator.

DR. C. N. JOHNSON:

I think we are all very much pleased to have heard from Dr. Newkirk, but I am sorry that he could not have been here to present the subject himself. This is an important and interesting subject, but I do not feel very enthusiastic about discussing it. It is a subject that we can make fewer rules about, rules that may be followed invariably, than in any other line of our work. I was very much pleased to have the doctor call attention to the necessity of preserving the first permanent molar. I am more and more impressed with the idea that the profession generally is neglecting that detail; it is the cause of many deformities not only of the mouth and face, but of articulation of the teeth. I believe that the first permanent molars are the most important teeth in the mouth, with the possible exception of the cuspids. There is one feature of the first permanent molar that is very important, and that is its maintenance of the jaws in proper relation to each other. I have mentioned this before time and again, but it seems to be ignored by many practitioners. The first permanent molars come into position at a time when they must be the standard bearers of the arch, while the deciduous molars are being lost and the bicuspids and second permanent molars are coming in. If the first permanent molars are extracted at that time it will almost invariably result in a dropping together of the jaws. Those teeth are placed there for the purpose of maintaining the jaws in proper relation to each other. When the jaws drop together there is a loss of character to the face that is as definite in imprint to those who have studied this feature as is the loss of an anterior tooth.

I am impressed with this more and more, and while we hear the extraction of the first molar advocated with the idea that the second molar will come forward and take its place, I have never seen a model where the lingual aspect was normal after the loss of the first permanent molar. And therefore I make a strong plea for the preservation of the first permanent molar. I try to preserve it in any way that I can, even if the pulp is dead. I would rather lose that tooth at twelve than at ten. Even if the space would not be filled I would expect better articulation if the tooth was preserved until the other permanent teeth were in. I would rather lose a biscupid or a second permanent molar than the first.

Dr. Crouse stated that he did not have much trouble in managing deciduous teeth, but I think he overlooked one class of deciduous teeth, those where extensive decay takes place on the proximal surfaces of the deciduous molars. When the occlusal and proximal surfaces are involved we almost invariably find mastication crippled, and in many instances where the child complains of such teeth it will not be from exposure of the pulp so much as from the lodging of food in the interproximal space. The pulps of the deciduous teeth ordinarily are not very sensitive, and it is a common thing to find the pulp dead without any knowledge of it by the patient. But they invariably complain and point the little finger to the interproximal space.

The problem of filling two cavities where they face each other so as to protect that space is a serious one. For some years I have been following this plan: Where two molars are decayed, the second on the mesio-occlusal surface, and the first on the deciduo-occlusal surface, I bridge across them from one cavity to the other, thus protecting the interproximal space. The thing of all others at this time is to give the child comfort, and that as soon as possible, even if the work is only temporary. I believe in the necessity of doing temporary work in children. The effort to do permanent work has done much harm. We must give these little patients relief with as little pain as possible.

When I put gutta-percha in those cases I protect the gum in the interproximal space by using a metal guard across the space; otherwise the gutta-percha will wedge down, and while the patient may not complain, yet it sets up an irritation that is not very desirable. I rest the metal guard on the gingival wall of one cavity and extend it across to the gingival wall of the other cavity. I find that to be the most satisfactory way of managing those cases. It is a very slight operation; gives comfort, and I have been able to manage the most difficult of these cases more satisfactorily with that method than when I attempted to fill the cavities separately. The main thing is to give the child relief and without taxing it too much.

Dr. H. A. Cross:

I was very much pleased with Dr. Newkirk's paper. I fully coincide with every statement made therein. While Dr. Johnson was reading the paper before this society I thought and said to myself, "Surely Dr. Newkirk has had dealings with children in the dental office." His ability and skill in dealing with children is apparent.

I thought the same of Dr. Crouse while he was speaking, giving some of his experiences with children and their parents and other relations, and it is needless to say how exceedingly pleased I was with the remarks made by Dr. Johnson. The importance of saving the first permanent molar cannot be too greatly emphasized. But I wish to speak of another matter, or another phase of the work in caring for the children's teeth. It is the matter of dealing with the children themselves. I will refer to a case to bring out the point to which I wish to call your attention.

A child was brought to my office several times by her mother. The child was one over whom no authority was exercised at home. That was made evident by seeing the mother try to control the child. On these several occasions when the mother came with the child but very little was accomplished, and it was exceedingly difficult and disagreeable to myself and all concerned. On this occasion to which I specially call your attention the child came with an older sister, who stood close by the child in the dental chair, trying to control the young patient's unreasonable actions, who was crying and holding her hands over her mouth to prevent me from doing the work necessary to be done with her teeth.

Finding that kindness and persuasion were of no avail, and that I could accomplish nothing by trying to reason with her, I told her sister to go out of the operating room, which she did. I then spoke to the child in a very stern manner, saying, "Now stop your crying and put down your hands and allow me to fill your tooth, or else you get right out of my office and don't you come back!" She stopped crying, looked up at me with surprise, put her hands down away from her mouth and permitted me to proceed with the work. I did so with exceeding care to avoid causing pain. Upon completing the filling of her tooth her sister came in to take her home, when to my astonishment the child asked me to extract that tooth, touching the one indicated with her finger. On a previous occasion I had explained to her mother in her presence that this tooth should be extracted. As I was saying, to my astonishment the child requested me to extract the tooth, which I did without a tear being shed. This proves that the dentist can command confidence and obedience from a certain class of disagreeable young patients which cannot be obtained by persuasion.

Dr. E. J. Perry:

I had a little girl in my office to-day. I secured her confidence yesterday and she came back again to-day. Just as I was beginning operations the mother came in and told me that her physician said that I must not put any amalgam into the child's teeth. What are you going to do in a case of that kind?

Dr. Cross made a remark that I object to decidedly. There is no way to manage a child except through kindness. You cannot knock them down and put your knee on their little chests and yank out their teeth.

I remember some years ago I had a little girl come to my office, march up to the chair and sit down. I extracted the baby molar, which was troubling her considerably. As you know, some of these baby molars stick very tightly. This tooth came very hard and I know I hurt the child. She cried. After she wiped the tears from her eyes she looked squarely at her mother and said, "Mamma! You told me a lie." I shall never forget that as long as I live. The mother had told her that the extraction would not hurt. Had I known it I certainly would have told her otherwise.

Sometimes you can lie to a grown person, and get out of it, but woe to the man who lies to a child. The basis of the whole thing of managing deciduous teeth is in the management of the child itself, as has been well said in the essay.

DR. TRUMAN W. BROPHY:-

I think Dr. Newkirk was the first to propose the use of oxyphosphate of zinc together with amalgam, making use of the cement in the cavity and then introducing the amalgam and packing it directly into the plastic oxyphosphate of zinc. He advocated that method when he lived in Chicago quite a number of years ago. Dr. S. G. Perry, of New York, told me recently that in certain difficult cases he made use of amalgam in that way, first making the form of the cavity and then packing the amalgam into it, and using it afterwards as a sort of inlay. Dr. Perry, than whom there is no better operator in the profession to-day, said that he would recommend that method in certain cases. It seems to me that this might be used in some cases in deciduous teeth and serve a better purpose than when inserted as amalgam fillings put in in the usual way.

One remark made by Dr. Perry this evening must have been antagonistic to the views of some gentlemen, and that is as to the advice the physician gave him as to what he was to do. If some of our friends believe that dentistry is a specialty of medicine, this physician had a perfect right to direct Dr. Perry how to put a filling into a tooth.

DR. H. A. CROSS:

I hope the gentlemen present will not think that I advocate sternness as the rule for dealing with children. Kindness of course must be the rule. At the same time I claim that there are exceptional cases when the dentist should assert his authority and maintain it.

Dr. A. E. Matteson:

I was very much pleased with the paper and should like to have copies of it for distribution among some of my patients. I think it would do good. I was so well pleased with the paper that I cannot criticise it in any way. If the gentlemen present have not tried amalgam and cement together, I would advise them to do so. As a temporary filling or a filling in these cup-shaped cavities in the deciduous or even the permanent teeth, there is nothing better than this mixture. It is a very hard mixture and it will last. It is much harder to remove it than any cement. Have the cavity all ready; mix your cement and your amalgam just the same as you would if you intended to use either one alone. Then mix the two together, thus forming a new mass. It will harden in half the time of the quickest setting amalgam. The results are good and I would advise you to try it.

INTERNATIONAL DENTAL FEDERATION.

April Session, 1903.—Madrid.

ADDRESS.

By Dr. Ch. Godon, Paris, France.

Mr. Minister:—You have been kind enough to accept the invitation to preside at our opening session. In the name of the International Dental Federation, in the name of all the delegates who have come from so many countries to participate in this work, I express to you the most sincere gratitude for the eminent distinction your presence confers on our meeting.

You will be kind enough to be our interpreter to the Spanish government and transmit to it our sincere thanks for the great honor it bestowed upon us last year at Stockholm, when the Spanish Minister to Sweden came, in the name of his government to invite us officially to hold the Third Annual Session of the International Dental Federation at Madrid.

Among the numerous motives which determined us to accept your kind and generous hospitality there was first the pleasure that we experienced in seeing our young Federation take its place in the scientific festival which you are organizing for the occasion of the Fourteenth International Medical Congress and other international congresses which are being held in your beautiful city of Madrid. These international reunions have established this place as a favorable center for the manifestations of a universal scientific brotherhood of which you spoke day before yesterday to the Eleventh International Congress of the Medical Press, manifestations in which our young Federation is happy to participate.

As for us, the French delegates, it adds to it a new opportunity to unite more closely the bonds which spring from our side as well as from the Latin origin common to our two nations and which have created between France and Spain a sentiment of cordiality and sincere sympathy justifying more and more the saying of Louis XIV, "Between us there are no longer the Pyrenees."

There was still another motive which inspires gratitude from the F. D. I. Yours was one of the first governments to give it official support by sending to our sessions, as a delegate of the government, the professor of Odontology, from the faculty of Madrid, our excellent and devoted colleague of the Executive Council, Dr. Florestan Aguilar.

In the reports that he has given you on the work of our sessions he informed you what the International Dental Federation is and the object it has in view. Our Secretary General, in his report, has just told you the results it has already obtained, which will do away with the necessity of my speaking at any length on the subject. A few instances, will, therefore, suffice to recall to you briefly its birth, its action and its future.

The F. D. I. is the offspring of a great enthusiastic movement which promoted the success of the Third International Dental Congress which was held in Paris in 1900. The twelve hundred delegates representing the principal dental societies of the several countries of the world who participated in this congress wished to preserve the international dental organization which had a right to be constituted on the occasion of this congress, and to assure its permanence, to create, in a word, a medium that would permit the continuity of International Dental Congresses, to regulate their management and perpetuate the universal understanding immediately realized at Paris in 1900.

Therefore, then, this creation is still a new revelation in a somewhat special field of human activity, but what should interest you still more is the coming together of men of science from all parts of the globe, physicians, hygienists, engineers, to struggle in common, whatever may be their nationality, against the numerous scourges that afflict our poor humanity. And everywhere the representatives of public powers receive them with kindness and accord them their support because they know that in these peaceful contentions their victories are those of which each nation can rejoice, because the human race profits by them.

We are engaged, Mr. Minister, with human misery, which appears less grave as to its immediate consequences, but which is not less universally broadcast. If the disorders which it produces do not endanger the lives of humanity they have none the less a sorrowful effect on the development of the individual by imperiling his health and that of the generations who follow.

The dentists have desired to take in their turn their place in this very interesting evolution of modern science. They understand what powerful instruments of progress international congresses are for their special and still somewhat new science, odontology, how much they have contributed already to the development of modern dentistry, how much they have stimulated the progressive activity of dentists and how far they have spread throughout the entire world the new methods and new operations.

Therefore, the first thought that inspired the creation of the Federation was the necessity of having an international organ, a promoter and regulator of the benefits of international congresses. But from the first meetings, the field of action has extended. The necessity of study was felt and the importance of the questions which occupy the professional elite. And among these questions the uppermost was that which relates to education.

The second of our considerations extended to the poor, those who suffer and lack the material resources with which to obtain relief.

The complexity of modern dentistry makes it at the same time a scientific and a medical profession, through the medium of dental surgery and anæsthesia, and an artistic and mechanical profession through operative and prosthetic dentistry. This complexity has up to the present day made it difficult to determine precisely the one from the other.

The vice-chancellor of the university of Cambridge, Professor Michael Foster, when he received us in 1901, explained it to us in this way: "The dentist is a surgeon and something more. He must acquire a certain skill and possess a special knowledge of metallurgy, chemistry, physics and some mechanism which neither the physician nor the surgeon require to know." (Page 53, 1901.)

These conditions, belonging to the nature of the profession, have even to this day made it difficult to apply to dental service rules which habitually govern instruction and public assistance.

At first debates were maintained on the high grounds of theory and philosophic generalities. Men whose occupation is that of educators and professors were asked to formulate for us the bases of a plan of rational education.

Afterwards we wished to see how each of the nations represented in the Federation had solved the problem.

In the series of documents produced, many prejudices were dissipated, many errors discovered. Then supported by scientific bases which were brought to our attention by professors of the university of Cambridge and by documents which have been collected, it was possible, at the reunion at Stockholm last year, to get up a middle term program of instruction which will be completed this year at the reunion at Madrid and which corresponds to the general idea and to the requirements of the dental profession and to those of the public in our time.

In this manner, step by step, after mutual concessions, the best conditions of education have been studied and formulated, preliminary, scientific and medical, and which are to be studied this year. The conditions of the technical education of dentists, as well as the duration and the order of studies, will thus be completely determined.

To the sessions which follow will be left the consideration of this program, in studying the best methods and the best pedagogical process, the detailed program of each subject, the number of practical works, etc.

It has been the same for hygiene and public dental service. The inquiry made into the dental service of the world has shown that wherever an organization existed, it was of the most rudimentary nature and by no means appropriate to the requirements of the public poor.

In general medicine and in surgery the poor who frequent hospitals receive in all civilized countries care in keeping with the progress of modern surgery and medicine; it is unfortunately not so with dental surgery. Modern dentistry is the appanage of the rich; for the poor are reserved the care of another age, against which our sentiments of equality and humanity protest.

I will not speak to you anew of the other projects with which our Secretary-General has just entertained you in his report and all of which have for an object the completion of our work of universal progress. New spheres are open to us in proportion to the number of delegates who come to assist at our meetings, but "the field is one of vast extent and the workers are always too few."

The executive council has not lost sight of the fact that the creation of the Federation was for the purpose of preparing and organizing a Fourth International Dental Congress, and as you have just been told, it was decided at Stockholm, following the invitation that had been sent to it on this subject, that the Fourth International Dental Congress would be held at Saint Louis in 1904. But it was the first time that the Federation was called upon to interefere in the preparation and organization of an International Congress. Up to that time the initiative was left to the nationalities themselves.

Therefore, it is not astonishing if this interference has provoked some astonishment and even some objections among certain personalities in the United States not fully acquainted with the object and powers of the Federation. In fact, it is the Federation itself that always forbids all interference in affairs purely national other than in the way of advice. That is what we stated when we said "it was a great international consultative committee of the dental art."

But as far as international ground is concerned, its powers are well defined. Some interesting discussions have arisen on these questions since the last session. They have shown what an important position the Federation held in the minds of the dental world. It shows clearly that the agreement concluded in Paris in 1900 by the delegations of the National Dental Federations of the entire world and against which no Federation represented has to this day, protested, that it has confided to the Federation the mission of preparing and organizing the Fourth International Dental Congress, that naturally it could not carry out this mission without the harmonious concurrence of the representatives of the country in which the Congress is to be held, and that consequently the assistance of two elements of different sources is required to assure the success of the contemplated work.

Each of these two elements should have a distinct part in the work and also a common part. The part to be taken by each of the elements will be determined in this session.

But we know that through the intervention of official authorities justly qualified, as well as by the desire of harmony which inspires the members interested on either side, the executive council could establish a modus vivendi which will permit regular functions and will serve as a model in the future.

I have endeavored to show you in full length, Mr. Minister, the general object of the F. D. I. and its action during its first sessions on the organization and the evolution of modern dentistry, and to you, gentlemen, I remind you of them.

We need somewhat the necessary distance in order to appreciate the just reverberation of its acts in the dental evolution of each country, but we can affirm already that in several countries its action with the public authorities has been powerful enough to assure the success of several reforms. This action will be much greater still in the future, when the few obstacles are overcome that a narrow nationalism would still allow to exist in certain minds on the subject, when one is fully convinced that it follows only a noble and disinterested object between all, that those who direct it serve neither the interest of one nation, nor one race, nor one language at the expense of the others, but have solely in view the pursuit of an exalted ideal.

Its action will still be more fruitful, because it works as the regular and necessary organ of dental science for the greatest good of humanity.

ODONTOLOGY.

An Address Given at the Madrid Session, April, 1903, by Dr. Maurice Roy, Delegate from the School of Dentistry of Paris, France.

The International Dental Federation has just held its third annual session under particularly interesting conditions, and it is with much pleasure that we greet the third year of the existence of the F. D. I., an organization unique in the liberal professions, and whose disinterested but powerful action has already commenced to make itself felt in the march of professional events and the direction marked out for national organizations.

It is with unusual seriousness that the session of April 22, 1903, has been opened. It is in fact in the Academy of Medicine of Madrid and under the presidency of the Minister of Public Instruction of Spain that the first reunion of the Federation was held.

After the Secretary-General, M. Sauvez, had read his annual report, M. Godon gave an excellent opening address in which he showed the object pursued by the F. D. I.

Numerous delegates from all countries came to assist in the deliberations at this first sitting. They brought their greetings and their best wishes to the F. D. I. and to their Spanish fellow-members, who this year had extended their hospitality to the young international organization. It is becoming on this occasion to thank in an especial manner our excellent fellow-member, M. Aguilar, owing to whose efforts the Federation has obtained the favor of holding its meetings in the premises of the Academy of Medicine, and thanks to whom the Spanish Government, in the person of its Minister of Public Instruction, was kind enough to give an official dedication to the labors of the F. D. I.

The several organizations composing the F. D. I. held their meetings from the 22d to the 29th of April.

We are going to attend to each one of them in succession and to point out concisely the work accomplished and the resolutions voted on by each one of them.

THE INTERNATIONAL COMMISSION OF INSTRUCTION.

One of the most interesting subjects before the F. D. I. is without doubt professional instruction. The International Commission of Instruction was created immediately after the F. D. I. as an indispensable organism of the latter, and its first members were named in 1900, at the same time as those of the Executive Council.

The three years which have just elapsed have been for this commission most fruitful in results, and there is certainly no better justification on the part of the F. D. I. than the exhibition of the enterprising work of this commission during its three first years.

From its foundation the International Commission of Instruction thought that the first work imposed upon it was to establish a program of instruction.

That was a work particularly delicate and exacting if one considers the difficulty which presented itself from the first to make a program that would give satisfaction to the representatives of the different countries which constitute the commission. We acknowledge, for our part, that from the time of the first session, when the preliminary battles began, we were not without anxieties over the possibility of an agreement between men of such different views. But these anxieties were not realized, and it is with profound joy that we are able to state that this year the Commission has accomplished the difficult task and that it has succeeded in establishing in its three sessions the program of the complete studies of the surgeon-dentist, making on this point as complete an agreement as it is possible between the members of the Commission.

If this great problem has led to good results, it is because we had but one object in common, the progress of our art.

In order to arrive at a result the work was divided. In the first session at London and Cambridge, the members of the Commission came in contact, exchanged their ideas on the general organization of professional instruction and fixed for the following session the questions that should be studied. They decided to discuss:

1st. Preliminary studies in dental instruction.

2d. The general arrangement of studies.

3d. The program of scientific and medical studies.

Numerous reports were made on these questions for the session of 1902 at Stockholm, and long and interesting debates were held on the subject of these three questions. The Commission finally adopted a solution for each of them.

On the question of preliminary instruction it decided that "the requirements should be the same as those which are required of students in medicine or in law in countries where schools are under the control of the government or the equivalent of these requirements in countries where this control does not exist. The requirements should be determined by the Minister of Public Instruction."

On the question of the general arrangement of studies, the Commission adopted the following resolutions:

1st. Dental studies comprising part scientific and medical, and part technical.

2d. Their duration to be at least four years.

3d. These studies should be arranged following a method parallel with all the courses: scientific and medical instruction, and technical instruction simultaneously.

4th. It will be obligatory on those holding diplomas in medicine, who intend to practice the art of dentistry, to take at least a two years' course of instruction in a school of dentistry.

On the question of scientific and medical studies which the student in dentistry should undertake, the Commission adopted the following program:

First, physics; second, chemistry, including therewith metallurgy; third, anatomy; fourth, histology and embryology; fifth, physiology, including therewith physiological chemistry; sixth, bacteriology; seventh, materia medica and therapeutics; eighth, general pathology; ninth, general surgery; tenth, physical diagnosis; eleventh, special and anæsthetic surgery.

Such was the work accomplished last year by the Commission. In order to complete the general program of studies there was still the program of technical instruction to which was attached the interesting question of manual training preliminary to dental studies. That is the subject for the session at Madrid.

A certain number of reports were presented on technical instruction and some interesting discussions took place on this occasion, discussions in which we had the pleasure of seeing that the difference of conceptions existing between certain ones among us were much more apparent than real. We will point out in particular in regard to this an interesting instance. The representatives of Austria advocated views apparently opposite to those of the representatives of France and America, in regard to the doctorate degree. Nevertheless these members presented a report which demanded that all physicians wishing to devote themselves to the practice of dentistry should have at least two years of special studies to be followed by an examination.

As may be supposed, since that was the question at issue from the first, an understanding was readily come to between competent practitioners whatever may be their origin.

After the debates which took place the Commission brought up the following resolutions, which were adopted unanimously:

First Resolution: It is preferable that the preliminary education, artistic and prosthetic, of the surgeon-dentist should be given in schools of dentistry in preference to an apprenticeship with a practitioner.

Second Resolution: The possession of manual training is desirable previous to all dental studies. Nevertheless, in default of it schools should arrange for its teaching during the first year of study.

1st. Preliminary manual instruction indispensable to the study of prosthesis.

2d. Some elementary knowledge on the constitution, the formation, the diseases and the treatment of the organs which they will have to treat afterwards.

3d. Practical progressive instruction in operative dentistry on the dummy.

Third Resolution: Special dental or technical instruction should include theoretical and practical courses.

1st. Besides scientific and medical courses, the list of which was given last year by the Commission: 1. Physics. 2. Chemistry, including metallurgy. 3. Anatomy. 4. Histology and embryology. 5. Physiology, including therewith physiological chemistry. 6. Bacteriology. 7. Materia-medica and therapeutics. 8. General pathology. 9. General surgery. 10. Physical diagnosis. 11. Special surgery and anæsthetics. The theoretical courses should permit the study of the following subjects: I. Anatomy, histology and dental physiology, normal and pathological. II. Dental pathology. III. Dental therapeutics. IV. Operative dentistry. V. Prosthesis. VI. Orthodontia. VII. Surgical prosthesis. VIII. Dental hygiene. IX. Pathology and oral surgery. X. Anæsthetics. XI. Radiology and electro-therapeutics. XII. Dental jurisprudence.

2d. The practical courses should include: I. Operative dentistry. II. Clinical dentistry. III. Prosthesis in the laboratory.

IV. Clinical prosthesis. V. Clinical stomatology or oral surgery. VI. Anæsthetic clinics.

3d. These different courses, theoretical and practical, should be distributed over the four years of study in accordance with a progressive program.

For medical doctors wishing to practice the art of dentistry these courses should be distributed over the two years of studies and followed by special examinations.

Fourth Resolution: In order to secure control of practical work, the students should be required to perform each year a minimum number of operations of various conditions and a minimum number of formal preparations.

In this manner a complete program of dental instruction can be accomplished, preliminary studies, general organization of studies, scientific and medical instruction and technical instruction. We should be doubly happy over the result obtained. On the one side the managers and professors will find valuable suggestions in the resolutions voted on and the very interesting discussions which have preceded them, discussions in which the most qualified persons of all countries have taken part.

On the other side, from a somewhat personal point of view but which is not the less legitimate, we should rejoice in the resolutions which have been adopted by the international commission of instruction because, for the greater part, they are the reproduction almost wholly of the resolutions which your delegate had presented at Stockholm and at Madrid with the approbation of the management of the Dental School of Paris and of the National Dental Federation.

In your report last year and this we have taken as a basis the organization and the program of the school to which we have the honor to belong, so that it is in a manner almost complete, the organization and the program of the Dental School of Paris, which have been adopted by the International Commission of Instruction as the ideal program of the hour.

But it would be vain to become too much elated by this indorsement, this program being also in its greater extent that of the best American schools; nevertheless, we think it was useful to show the importance of the result obtained as much from an international point of view as national, and to have by these facts the confidence in the role played by our country in this international reunion appreciated.

Without encroaching on the department of my friend, M. Martinier, I ought to say a word on the questions of instruction before the Medical Congress. They were to have been brought up on the occasion of the very complete and documentary report of Dr. Godon, our director, on "the knowledge one should possess in the exercise of dental art." An interesting discussion bearing particularly on preliminary manual instruction and technical instruction followed the statement of this report, and it was proper to state, in the course of this discussion, that the major part of the assembly was very clearly in favor of the predominance of technical and manual instruction during the time devoted to the general instruction of the student in dentistry.

The International Commission of Instruction has decided to carry over to the order of the day of its next session the question of instruction in prosthesis and instruction in operative dentistry.

Such are, briefly stated, the principal points concerning instruction that we are able to describe to you apropos of your delegation to Madrid. I do not think I need further urge the importance of the results obtained, and if to the labors of the Commission of Instruction of which I have just given you a sketch, one adds the work accomplished by the others of the Federation, Executive Council, Commission of Hygiene, Commission of the International Press, of which I am going to point out concisely the vast extent, you will have an idea of the important work accomplished by the F. D. I. during its brief sessions.

Executive Council.—We know that last year at the reunion at Stockholm, by virtue of the decision come to in 1900 by the Paris Congress confiding in the F. D. I. the mission of organizing the next International Congress, the American National Association had delegated three of its members to transmit to the F. D. I. a petition to organize at St. Louis (United States) in 1904 the Fourth International Dental Congress. After discussion, the Executive Council of the F. D. I. accepted this invitation and ordered a committee of nine members to represent it in the preparation of the Congress. This decision, in consequence of misunderstandings and complications on the subject which it would take too long to discuss, caused a conflict in the United States with the American National Association.

Finally it was decided by this Association that the solution of the conflict would be demanded of the Executive Council of the F. D. I. at the time of its meeting in Madrid.

The council had consequently to decide this year this grave question connected with the organization of the Fourth International Dental Congress. The two parties interested had sent representatives to the reunion at Madrid—on the one side, Messrs. Brown of Wisconsin and Cryer of Philadelphia; on the other side, Messrs. Brophy and Harlan of Chicago.

After long debate, the Executive Council, taking into consideration the different interests in view, gave a decision which, we hope, will permit of all organizers of the Congress to work harmoniously together in the interest of this great international enterprise.

According to the terms of this decision, the Executive Council of the F. D. I. will be represented by a commission consisting of nine members designated at Stockholm, to be increased by a sufficient number of members to equal the Committee of the National Dental Association. These two committees will have equal powers and will work in common to name the officers of the Congress, prepare the ways and means of bringing the latter together, prepare the scientific program and give assurance that the professional interests of all nations shall be respected.

In case this solution will not be accepted by the two parties, the Executive Council is authorized to withdraw the acceptance given last year and to decide that the St. Louis Congress shall not be the Fourth International Dental Congress. The bureau of the Executive Council is charged with the settlement of the disputes supervening during the intercession.

That is the solution of this conflict which has absorbed the greater part of the time of the Executive Council; it has had besides to settle several other interesting questions: the organization of the existing commissions by the adjunction of titular members and of associate members among the members at the Madrid session; the organization of a new commission, that of the International Press, the regulation of the finances and the publication of the reports given of the session, which, beside the publication in French, shall be published in English by THE DENTAL REVIEW. Some provisions are to be made also for the assurance of the publication in German and in Spanish. A new commission has been decided on for next year, the Commission of International Jurisprudence.

It has been decided that for the next year reports will be presented on the subject of by-laws so as to assure to each country a proportionate representation in conformity with the object and the spirit of the F. D. I.

Finally, the next session has been fixed for August, 1904, at St. Louis, on the occasion of the International Congress; nevertheless, in case the solution of the St. Louis dispute should not be accepted by the interested parties, the bureau of the Executive Council will have the selection of the date and of the place of the next session.

International Commission of Hygiene.—This Commission, brought together again, under the presidency of Mr. Jenkins of Dresden, has examined the report of Mr. Heidé on the subject of the important work presented last year by Mr. Frank of Vienna, in the name of the sub-commission, Frank, Förberg, and Cunningham. This report concluded with four propositions concerning the organization:

1st. Dental inspection in the schools.

2d. Dental attendance in the armies on land and at sea.

3d. Dental inspection for workers in industries.

4th. Dental attendance of public relief.

The two first propositions have been adopted and the votes concerning them will be transmitted to the several managements through the interposition of the Spanish Government. The two other propositions have been reserved for the next session.

Commission of the International Press.—Last year at Stockholm Mr. Förberg pointed out the difficulty for practitioners occupied all day to keep themselves acquainted with all the scientific or practical innovations because of the diversity of languages and the considerable number of dental journals that it would be necessary to look through to do so. He requested the Executive Council to be good enough to study the means of obviating in some way this inconvenience so prejudicial to the progress of the dental art. It is in order to resolve this question that the Executive Council has this year appointed, under the presidency of Mr. Förberg, the Commission of the International Press.

This Commission has decided to publish every three months a bulletin in different languages in the journals of the different countries with which the F. D. I. shall have an understanding. This bulletin will give in a condensed form all scientific innovations or the most interesting methods of practice published in the dental journals of the entire world.

For the editing of this bulletin secretaries will be chosen who will look through the journals of their respective countries, will make a summary of the most interesting matter and send a report every three months to the Central Secretary, who will compare all the reports, will have them translated in the principal languages and published, as has been already stated.

One sees the importance and the interest of the work undertaken by the Commission of the International Press; if, as we firmly hope, the Commission succeeds in the important undertaking, and, thanks to the division of labor which it has combined that is perfectly feasible, the F. D. I. will have done for the progress of the dental art one of the most notable things that is possible to do in the matter of publication.

The mere fact of having conceived this lofty enterprise constitutes for the Federation and for the author of the initial proposition a great distinction, and if the F. D. I. guides it well, we will be able to say that it will have deserved much from dental science.

Bureau of Various Commissions.—The different commissions have constituted their bureau for 1904.

The Executive Council, in spite of the reiterated refusals of M. Godon, has renominated him unanimously President at the same time that it renominated M. Sauvez, Secretary, and Messrs. Harlan and Miller, Vice-Presidents.

The Commission of Instruction has maintained its former bureau with Mr. Brophy as President, Messrs. Zigmondy, Patterson, Cryer, as Vice-Presidents, and Messrs. Roy and Weiser, as Secretaries.

The Commission of Hygiene has named President Miller to replace M. Jenkins, who was unable to continue his duties.

The Commission of the International Press finally has chosen M. Förberg as President.

Moreover, all the commissions have decided to complete their bureaus later on by the addition of a certain number of Vice-Presidents, so that the different nationalities may have representatives in the bureau.

As may be seen, the different commissions have at their head the most qualified of men; we will point out in particular the entrance into the bureau of the Executive Council and to the presidency of the Commission of Hygiene of Professor Miller of Berlin, whose high professional standing is known to everyone and who, in taking part for the first time in the labors of the F. D. I., was so impressed by the importance of the work undertaken by it that he accepted the different functions to which his colleagues elevated him, resolved to contribute himself also to the development of this International Dental Federation, of whose labors I have just given a summary for the session of 1903.

By this rapid outline which I have just presented, one can judge of the work already accomplished by the F. D. I. and of the infinitely greater work which it has to pursue in the future.

This simple summary, we believe, tells more than long philosophic discussions on the utility of the F. D. I. We will also refrain from further comment than that of wishing our International Federation to continue in the future with as much success as in the recent past its work for the universal professional organization and the progress of the science of dentistry.

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Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE IROQUOIS THEATER FIRE.

It is seldom that a community is called upon to face so terrible a calamity as that which befell the people of Chicago in the fire at the new Iroquois theater on Wednesday, December 30, 1903. At the present writing, a few days after the disaster, the picture is too vivid to write of it dispassionately. The exact number of dead will probably never be known, though it will reach to more than 600. But even this staggering number does not indicate the appalling nature of the event, the details of which are too heartrending to portray.

Two Chicago dentists lost their lives, and a senior student from the Chicago College of Dental Surgery is also among the dead. Dr. A. J. Oakey, with his two children, and Dr. M. B. Rimes, with his wife and three children, attended the matinee in a party. Not one of them escaped. The student's name was Harold Bliss, of Racine, Wis.

Drs. Oakey and Rimes were both estimable practitioners, beloved by everybody who knew them. They were graduated some years ago from the Chicago College of Dental Surgery, and had practiced in Chicago ever since, Dr. Oakey at Stewart avenue and Sixty-fifth street, and Dr. Rimes at 6331 Wentworth avenue. To have such worthy members of society as these wiped out in this way is truly deplorable, and THE DENTAL REVIEW expresses its sincere sympathy for the bereaved of the stricken families.

Some of the escapes from the burning building were almost miraculous. Miss Mignon Johnson, daughter of the editor of THE DENTAL REVIEW, was sitting with a young lady friend five or six rows from the stage when the fire broke out. Both escaped.

To recite all the incidents connected with that dreadful day would require a volume, and the reading would not be conducive to contentment or peace of mind. It was one of those inscrutable, staggering events which rack the hearts of humanity and leave us dumb to account for them. The misery in the wake of that awful half-hour will go beyond the bounds of state or territory, and drag its weary length far out into the years to come. We can only sorrow with the bereaved, lend a helping hand to the stricken, and pledge ourselves as responsible citizens to see that the laws of our land are better enforced for the future protection of the innocent.

STUDY YOUR STUDENTS.

The latter half of the college session for 1903-4 is now well under way, and it is none too soon to begin a critical study of each student on the part of every faculty to determine his precise status as a candidate for graduation. The mere mockery of a written examination at the close of a session is no test whatever of a student's equipment to go out upon the world and properly serve the public as a dentist. The ability to glibly rattle off a lot of answers to questions on a subject crammed for the occasion should no longer pass muster as the sole requisite to obtain a diploma. There are other kinds of knowledge necessary to round out a modern practitioner of dentistry, and to go still farther it may be stated that there is something even more than knowledge required to entitle a man to follow this profession. He should be able to do, as well as to know, and to properly judge of a candidate's capacity in this regard a professor must have months of observation of the individual himself instead of forming an opinion by reading a few of his written answers.

It is for this reason that the examination of State Boards, no matter how conscientiously conducted, are not a fair test as to eligibility to practice.

Teachers who do their duty must keep the closest surveillance of each student throughout the entire college course, and even then, at the end of this long observation, it is sometimes difficult to judge accurately of an individual's fitness to receive the degree. Let every professor from this time till the close of the present session devote himself to the important task of studying well the capabilities of the students under him, to the end that a fair and equitable judgment may be passed upon each man coming up for graduation next spring. To do less than this is unfair to the profession, the public, the college, and last but not least, to the candidate himself.

THE EDITOR'S DESK.

New Year's Greetings.

The editor is pleased to acknowledge many New Year greetings from his friends in the profession, and he hereby sends them all his choicest brand of thanks and his best and most fraternal good wishes. Among those who hailed him from a distance were: Dr. Alfred Burne, Sydney, Australia—who, by the way, recently sent the editor the jaw of a shark caught by Dr. Burne about forty miles from Sydney, the shark measuring fifteen feet, and the jaw a beautiful specimen which will soon be decorating the editor's den; Dr. L. J. Mitchell, London, England; Dr. J. F. F. Waltz, Dresden; Dr. John S. Burnett, Montevideo, South America; Dr. William M. Griswold, Hamburg; Dr. C. F. W. Bödecker, Berlin; Drs. W. Mitchell and E. F. Day, London; Dr. F. G. Butler-Wood, Sydney, Australia; Dr. H. J. Jaulusz, New York, and Dr. F. J. Capon, Toronto, Canada.

Besides these greetings the editor has an acknowledgment to make for an act so kind and so magnificent that it fairly took his breath when it happened. At Christmas one of his readers sent him a beautiful Russmore desk as a present, and that desk has been the apple of his eye ever since. It is fully expected that this particular department of The Dental Review will be largely influenced in future by that piece of furniture. If readers notice that "The Editor's Desk" improves from this time forward they will know it is because of the facility with which good work may be turned out over this desk; if they see a deterioration in the quality of the work, they can lay it to the fact that the chair which was sent with the desk is so very comfortable that the editor has grown lazy. As a psychological study it may be well for our readers to watch this department somewhat closely for the next few months, and see what effect a bit of prosperity has on an editor.

RESOLUTIONS ON THE DEATH OF DRS. A. J. OAKEY AND M. B. RIMES.

"The Chicago Dental Society expresses its grief at the loss of two of its members in the recent calamity at the Iroquois Theater—Dr. A. J. Oakey and Dr. M. B. Rimes, well known and honored members of the dental profession, and much respected citizens of Englewood.

The Society extends heartfelt sympathy to those bereaved."

(Signed) EDMUND NOYES,
J. E. HINKINS,
ARTHUR D. BLACK,
Committee.

JOHN ALLEN, M. D., D. D. S.

BIOGRAPHICAL SKETCH.

XXIII.

JOHN ALLEN, M.D., D.D.S., PERFECTOR OF PORCELAIN DENTAL ART.

By Burton Lee Thorpe, D. D. S., St. Louis, Mo.

John Allen, son of Dr. Nirum Allen, a practicing physician, for many years, at Cincinnati, was born November 4, 1810, on his father's farm in Broome county, N. Y. He was a descendant of General Ethan Allen of Vermont, famous in the annals of the Revolutionary War.

When John was a boy his father emigrated to Ohio, which was then regarded as "The Far West." Several years were spent here by young Allen in agricultural pursuits, until at the age of nineteen his attention was diverted to dentistry and he became the student of Dr. John Harris, of Chillicothe, who has to his credit the honor of being the preceptor to several of our foremost pioneers, such as Chapin A. Harris, James Taylor and others whose influence in dentistry has been widespread.

After a pupilage of one year with Dr. Harris he moved to Cincinnati, Ohio, in 1830, where he began his professional career, and at the Ohio Medical College of that city took a course of lectures and was granted the degree of Doctor of Medicine. While attending the college he prosecuted his studies on the characteristics and anatomy of the human teeth and face.

Dr. Allen early evidenced a liking for prosthetic dentistry, and his contributions to this will ever be remembered as his most enduring work. He sought and obtained a practical knowledge of the manufacture of mineral teeth. In order to overcome the defects of appearance and lack of strength and the stiff mechanical look of dentures made from single and block teeth, he instituted experiments with the view of overcoming these defects and improving the system of prosthetic work.

An important step was an effort to test the practicability of raising the sunken portion of the face where original form and expression were destroyed or changed by loss of the teeth and consequent absorption of the alveolar processes. His first notable contribution was presented at a meeting of the American Society of Dental Surgeons held at New York, August 5 to 9, 1845, when he read an essay, and exhibited apparatus for restoring the shape of the face when lost from any cause.*

Dr. Allen had made a close study of the bony and muscular framework concerned in expression. He found that at four points the loss of tissue following the loss of the teeth required more support than was practical to provide when the natural teeth were replaced with artificial ones by the teeth alone. If the teeth were placed in the best position for restoration of expression they would be useless for mastication. To remedy this he used the well known "plumpers." The members of the society were so favorably impressed by this novel idea, and with its usefulness, that on motion it was resolved: "That Dr. Allen's improvement be regarded as important, and that a medal be presented him, also five volumes of the journal, bound and subscribed by the recording secretary, as awarded by the society for said improvement." This idea had no connection with his later continuous gums. The idea was covered by a patent "For Restoring the Contour of the Face," dated December 16, 1845.†

His claim reads: "I claim the manner of restoring hollow cheeks, by means of metallic bulbs, constructed in the manner set forth, or by any other substance, between the jaw-bone and the cheek."

At a meeting of the society in 1847, a vote of censure was passed upon Dr. Allen for having procured a patent after having freely offered the benefits of the invention to any member of the society, and afterwards demanding a percentage for using it.

A little later he began experiments which culminated in his invention of the well-known continuous gum. About this time much activity was manifested in improving porcelain artificial teeth. The imitation of the gums had always been a stumbling block. The single gum teeth of this period were in this respect very defective. The color was rarely satisfactory, and the shape did not permit much artistic work. Block teeth were hand carved, and while many were rudely done, the work of experts of that time had not been excelled. They were generally riveted to the plate, the rivets passing perpendicularly through the teeth, sometimes riveted at

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**American Journal of Dental Science,* Vol. VI., September, 1845, page 79. Also *Dental Cosmos,* Vol. VII., May, 1866, page 527.

†*American Journal of Dental Science,* Vol. II., April, 1852, page 409.

both ends, and at other times one end was soldered to the plate. Very few were backed and soldered. Numerous attempts had previously been made to construct the teeth and plate of one piece of porcelain, but they had not proved practicable. Dr. Allen conceived the idea of using teeth without gums, and forming the gums and uniting the teeth to the plate in one operation. The plate he made of platinum, or pure gold alloyed with platinum, so as to raise the fusing point of the plate and permit of the porcelain being baked upon it. The patent for this was granted December 23, 1851. (Class 20, No. 8621.) It contains three claims. 1st. "Mode of setting mineral teeth on a metallic plate." 2d. "A fusible silacious cement which forms the gums." 3rd. "The combination of asbestos and plaster of Paris for investing." It was not at first attempted to cover the entire lingual surface of the plate with the gum. In the earlier work the gum in porcelain was depended upon to hold the teeth to the plate, the teeth being held in position by the investment. First soldering the teeth to the plate before applying the fusible porcelain was an afterthought, as was also covering the entire lingual surface; both were valuable improvements, and made the work much more practical. Dr. Allen soon found in a fellow townsman a sturdy contestant for the honors and the profits of this invention. Dr. William M. Hunter, a demonstrator of mechanical dentistry in the Ohio College of Dental Surgery, Cincinnati, was also experimenting in the same line, and contended that he had anticipated Dr. Allen, and proceeded to use what he thought was his own idea, and was soon met with a suit for infringement. Without passing upon the merits of the controversy, it is sufficient to say that in the end Dr. Allen's right as the originator of this new idea was fully accorded by all concerned. In the meantime, however, for a few years was waged a hot and furious legal and journalistic contest. They were both very stubborn men, both felt that they were right, and both used in their various communications to the journals language of which they were no doubt later ashamed. It was the first contest over a patent in which the profession was interested, although it was not of general interest.

Dr. Allen was a well-formed man, tall, of commanding presence, tenacious of his own ideas, yet ready to hear and accept those of others. In porcelain work he was the chief advocate, not only in this country, but in the world wherever dental prosthetics were known and practiced. He also was interested and took active part on various lines of thought and effort to develop and elevate the profession. Appreciation of his contributions to dental prosthesis was manifested by the award of medals from many American societies and institutes. Also from the World's Expositions at Paris in 1867 and 1878, at Vienna in 1873, and at the Philadelphia Centennial, 1876.

In the subject of dental education he always manifested a warm interest. A writer of more than ordinary ability, he added many valuable contributions to the literature of the profession. Among his contributions were:

Contour of the Face; Physical History of Various Nations of the Earth with Special Reference to Their Teeth; Dental Chemistry; Continuous Gum Work; Professional Jealousy; Dentistry; Artificial Dentures; Artificial Gums; Destroying Nerves; Restored Expression of the Face; Causes which Retard Dental Progress. He wrote largely upon building the dental tissues with use of the phosphates contained in the whole wheat flour. This was his fad: "Brown bread versus white bread."

Dr. Allen, with James Taylor, Jesse Cook and M. Rogers, were the organizers and founders of the Ohio College of Dental Surgery, established in Cincinnati, 1845. He was appointed a Professor of Operative and Mechanical Dentistry, which chair he resigned on his removal to New York City in 1854, in order to more conveniently prosecute his experiments in porcelain art. Upon his locating in New York he became interested in the establishment of the New York College of Dentistry, of which he was Professor of Clinical Mechanical Dentistry, and remained a member of the Board of Trustees up to the time of his death. Dr. John Allen was elected a member of the American Society of Dental Surgeons at its second annual meeting, 1841, and promptly took an active part in its proceedings. His activity in the National Societies continued until his death. He was elected president in 1861 of the American Dental Convention. It was mainly through the efforts of Dr. Allen and Dr. John G. Ambler that this convention was continued after the formation of the American Dental Association, of which he was also a member. He was a member of the Mississippi Valley Society of Dental Surgeons and the Association of the Ohio College of Dental Surgery. In each he held several important offices of honor and trust, and was one of the delegates to and organizers of the Dental Society of the State of New York, 1868, and a member of other dental societies. The Baltimore College of Dental Surgery conferred the honorary degree of Doctor of Dental Surgery on him in 1845.

Following the unsuccessful experiments of Delabarre, Desirabode, DeLoude, Balsan, Andibran, Lefoulon and others, by his long and untiring efforts he gave the first practical formula for continuous gum body and cleared away many difficulties incident to porcelain work, and to-day is a recognized authority of the highest art in one of our most important specialties, of which he did the most, of all early experimenters, to perfect.

Dr. Allen was married twice; first, to Miss Charlotte Dana, of Waterford, Ohio, in 1835, who died, and to Mrs. Cornelia Reeder, of Cincinnati, Ohio, 1846. One son by his first wife, Dr. Charles Dana Allen, of New York City, and one daughter, Mary E., wife of C. Volney King, by his second wife, survive him. He died at Plainfield, N. J., March 8, 1892, from general debility, in his eighty-second year, and his remains repose in Greenwood Cemetery, Brooklyn.

The facts contained in this sketch were obtained from:

The *Dental Cosmos,* Vol. XXXIV., May, 1892, p. 408.

International Dental Journal, Vol. XIII., April, 1892, p. 309-11; Vol. XIII., Nov., 1892, p. 844-5.

Amer. Journal Dental Science, Vol. II., new series, April, 1852, p. 411; Vol. II., new series, Sept., 1841, p. 136.

New York Dental Recorder, Vols. V. and VI., 1851-53.

Dental News Letter, 1851-53.

Dental Register of the West, 1851-53.

Dr. H. A. Smith, Cincinnati, Ohio, and Dr. Allen's only son, Dr. Charles Dana Allen, New York City.

DOMESTIC CORRESPONDENCE

LETTER FROM DR. SPARKS.

Editor Dental Review.

Sir: I wish to thank you for your helpful article on "The Truth." The brother who felt a burning desire to "down" his opponent is deserving of sympathy. Who has not felt a twinge of revenge and a desire to "get even" with some confrere who has been indiscreet, or possibly unscrupulous enough to criticise our methods or operations to our patients? We may have done our best, by the most approved methods. We will save ourselves much worry and unhappiness by saying nothing but watching results. If our methods and manipulations have been correct they will be proved by time. If not, the criticism may help us detect the defects and we may live to thank our critic. We learn much by experience, but much more by interchange of ideas.

Because a method or theory be criticised it does not prove that it is not good, and a man is justified in defending what he has advocated until it is proven to be unsound. But the only value of a paper or article is, as you say, to find truth; and if that may be facilitated by our papers or articles or methods being criticised, let us welcome the criticism. Thereby we may be led to probe deeper into the subject and, perchance, find at the bottom what we thought we had found upon the surface.

I hope our brother will throw down the hatchet and take up the lancet.

R. E. Sparks,
Kingston, Ont., Canada.

NEW YORK LETTER.

On Monday, Dec. 7th, there occurred at the Hotel Lafayette, University Place and Ninth street, New York, the first annual dinner of the Interstate Dental Fraternity, the organization which received such impetus at Asheville this summer. About forty answered the call of the secretary. Dr. Ottolengui acted as toastmaster. Part of his introduction dealt with the future conduct of the fraternity. In effect he said that he believed it would be a good thing to invite gentlemen outside of the dental profession to lecture before the fraternity.

Another feature suggested was the interchange of banquets. We had with us that evening gentlemen from Washington, Philadelphia and other towns, and it was partly pledged that we would return the compliment by visiting their cities in the event of a banquet or meeting of the fraternity. Dr. Stockton, of Montclair, New Jersey, was introduced as the Dean of New Jersey.

Dr. B. F. Lucky, of Paterson, N. J., responded to the toast: "What shall we do to make you come every month?"

He said: "Exclude politics," but he did not think a professional society could thrive or that the policy of outside talent was good judgment.

Dr. Van Vleck, of Hudson, N. Y., said he came because he knew it was to be a plain, every-day love feast, and not all devoted to dentistry.

There were many other speakers, and the diners dispersed at a late hour in most fraternal fashion.

The regular December meeting of the "New York Institute of Stomatology," being its *annual meeting,* was held behind closed doors, so to speak. This society has an *active* membership of twenty-five, who transact all the business of the organization. Consequently we have nothing in the way of essay or discussion to report. The society is in a flourishing condition both in numbers and in finances. The following is the new list of officers for 1904: President, Dr. Albert H. Brockway; vice-president, Dr. Chas. Otis Kimball; recording secretary, Dr. Herbert L. Wheeler; corresponding secretary, Dr. J. B. Locherty; treasurer, Dr. J. Adams Bishop; editor, Dr. F. L. Bogue; curator, Dr. S. H. McNaughton; member executive committee for three years, Dr. F. Milton Smith.

There was a general combination of the dental societies in and around "Little Old New York" for the month of December, under the leadership this year of the First District Dental Society. The other societies, including the Central Dental Association of Northern New Jersey, gave up their regular meetings and for once belonged to the "combine."

The meeting occurred on Dec. 8th, being a large clinic in the afternoon, at the Grand Central Palace, Lexington avenue, Forty-third and Forty-fourth streets, and a larger meeting in the evening at the Academy of Medicine, 17 West Forty-third street.

The program both afternoon and evening has been the event of the autumn. The clinic committee certainly aimed high in the selection of their clinicians. To one who is acquainted with such work it was evident that they had accomplished the task of keeping the clinical list free from the selling agent.

Those who had anything to sell were given space with the exhibitor, and he was there in plenty. Thirty-nine or forty firms were represented. Of clinicians there were twenty-one. It was a big event, a great success from all standpoints. In the evening the regular meeting convened at the Academy of Music.

Robert T. Morris, M. D., Professor of Surgery at the New York Post Graduate School, read a paper on "Infections of the Lymph Glands of the Mouth and Throat."

Dr. Morris made the startling statement that many patients die from septic pneumonia, due to the extraction of an abscessed tooth. He advised doing no work when infection was in active prolification. He complicated the matter from a dental standpoint by saying that that condition can only be determined by slides.

The application of heat or ice in such conditions of infection should be in accordance with one's judgment. Tonics should be administered so as to increase cell resistance.

In evacuating an abscess the tendency is to use pressure. Don't do it, for then an abscess is likely to run its best course. It is liable to spread the infection by pressure. The use of pyrozone in sterile wounds is liable to produce new infection. Don't wash out an abscess. Don't disturb it, nature's albuminous substance is a very bland thing to have in there.

Dr. Schumberg, of Philadelphia, discussed the paper. On many points he took exception to Dr. Morris, especially as to the advisability of tooth extraction when an abscess is present.

Dr. H. W. Gillett spoke of the sterilization of the whole oral cavity before operating. He said, too, that we are too often liable to keep in the mouth teeth that cannot be saved.

Dr. Bogue, in his remarks, said that conditions which arise with the third molar teeth are the most fatal of all these conditions.

Another to take exception to some of the essayist's recommendations was Dr. Rhein, who did not favor waiting in operative surgery, or waiting until the leucocytes had gained the battle over the bacteria.

Dr. Morris said in closing that one of the greatest difficulties was the getting of patients to take as much interest in their mouths as in their bank accounts.

He touched on the use of streptococcus serum and said it often fails. Intervenous saline infusion he believes does more good.

He said the great trouble with the whole problem is that we do not understand each other, not because we will not, but because we have not the time. Knowledge is too vast.

On December 15th the Odontological elected new officers for the ensuing year as follows: President, Dr. John I. Hart; Vice-President, F. T. Vanwoert; Treasurer, F. C. Walker; Corresponding Secretary, Ellison Hillyer; Secretary, W. B. Dills; Curator, J. Adams Bishop. Yours truly, THE BOROUGHS.

BOOKS RECEIVED.

ELECTROTHERAPIE DENTAIRE. By DR. FOVEAU DE COURMELLES, with a preface by DR. CHARLES GODON. Thirty-three illustrations. Published in Paris, by A. Maloine, 1904.

REVIEWS AND ABSTRACTS.

LECTURES ON ORAL SURGERY. By Thomas L. Gilmer, M. D., D. D. S. With 78 illustrations. Pages 175. Chicago, 1903.

The first edition of this work was issued in 1901, and as stated by the author, it was intended merely as a brief outline of the lectures delivered to the students of Northwestern University Dental School. The second edition has been revised and additions have been made to the text and illustrations. Professor Gilmer's style is terse and to the point. Throughout this little volume there is no waste of words, and, while it does not aim to be a comprehensive text-book on the subject, yet there is a great deal of valuable information in its pages, presented in such a way that it is readily grasped and made available for practical application. The illustrations are good and the typographical make-up of the book most satisfactory.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE. CONTAINING THE MOST NOTEWORTHY POINTS UPON THE SUBJECTS OF INTEREST TO THE DENTAL STUDENT, AND A SECTION ON EMERGENCIES. By GEO. W. WARREN, A. M., D. D. S., Professor of Principles and Practice of Operative Dentistry, Pennsylvania College of Dental Surgery, Pennsylvania. Fourth Edition. Illustrated, Pages 180. Published by P. Blakiston's Son & Co., Philadelphia, 1903. Price, cloth, 80 cents.

While a compend is never expected to give a very complete treatment of any subject, yet if properly arranged it may be of great benefit to the student in reviewing a subject and to a practitioner as a brief reference book. The drawback to compends lies in the danger of leading to a superficial examination of the subject with a tendency on the part of the student to merely memorize a set of rules or formulae without going into a full understanding of the real essence of the subject. If a compend can be used with this limitation in mind it may be made useful, and Professor Warren's book seems well arranged for the purpose intended. There are 73 pages devoted to pathology, 74 to medicine, and an appendix of 27 pages dealing with miscellaneous topics under the head of emergencies. Altogether the book is well worth perusal and study.

PRACTICAL HINTS DEPARTMENT.

Edited by G. W. Johnson, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, The Dental Review, 55 State Street, Chicago, Ill.]

◆

Lubricating Rubber Dam:—Vaseline is preferable to soap for smearing about the holes in rubber dam.

Sylvester Moyer, Galt, Ont.

◆

To Clean Plaster Bowls:—When plaster has been left in the bowl till it becomes hard, pour boiling water in the bowl and allow it to remain for about two minutes. The plaster can then be easily detached, in most cases without the aid of a spatula.

Abraham M. Waas, Philadelphia, Pa.

◆

Repairing a Lower Plate:—Drill two small holes through the plate on each side of the fracture, insert binding wire through these and twist the ends together. This will bring the broken parts into correct relationship and hold them while model is being obtained.

A. W. Thornton, Chatham, Ont.

Case Hardening:—Heat the piece to be hardened, with a blowpipe until it has become cherry red in color and keep dusting on ferro cyanide of potash for a few minutes. Heat up again and plunge into cold water. If the metal comes out greyish white in color no file can even scratch it, but if it does not the cyanide must be kept on longer. J. Mills, Brantford, Ont.

◆

Save Your Old Porcelain Teeth:—When I spoil a facing I save it. A box of old teeth, either plate or rubber, will assist in obtaining a correct shade when you cannot find it on the shade guides. These odd pieces of teeth are also convenient sometimes to add for fusing in porcelain work. Homer Almon.

◆

Utilizing Broken Donaldson Broaches:—Insert the broach in a pin vise and grind it triangular to a fine point. This makes a sharp three-cornered broach which is useful for opening up small canals. The canals can be easily enlarged with them by careful work and several of different sizes can be prepared for immediate use. A. S. Waltz, Decatur, Ill.

◆

Don't:—Don't buy an instrument unless you need it for a particular method or purpose. Have all the instruments necessary to do your best, and no more. The most elaborate outfit of instruments I ever saw was peddled off, and that dentist became a good bookkeeper. It is surprising how few instruments are necessary in 90 per cent of our work.

H. Darling, West Bay City, Mich.

◆

Attaching a Lug to a Clasp for Vulcanite Work:—Fit the clasp and prepare lug the size required. Punch a hole in the lug near the end which comes in contact with the clasp and with one point of the solder tweezers inserted in the hole and the other against the side of the clasps the two can be held in correct relation and attached with solder in a Bunsen flame.

Oliver Martin, Ottawa, Ont.

◆

Application of Arsenic:—Where the cavity extends to or beyond the margin of the gum cut a piece of thin asbestos felt slightly larger than the bottom of the cavity. After the cavity is dried insert the asbestos and tip the edge nearest the occlusal wall out of the cavity. Place application in the cavity, preferably on a small piece of the felt, as it is less bulky than spunk or cotton, tip edge of asbestos back into the cavity and seal in the usual way.

R. E. Sparks, Kingston, Ont.

◆

To Clean Broaches and Burs:—To clean barbed or spiral broaches and burs, carry to the wash stand and brush all particles off with a nail brush, made of stiff bristles, after which sterilize. They will not be made dull by this process. The custom of cleaning these instruments by holding them against a rapidly revolving brush of metal bristles, while it brightens and cleans them, also removes the barbs of the broach and dulls the edges of the burs and spiral broaches. F. W. Stephan, Chicago.

◆

Don't Barb the Posts of Crowns:—In an effort to add retention qualities to porcelain crowns do not barb the post, as it will in most cases interfere with the proper adjustment of the crown. This was told you a few years ago by Dr. W. H. Taggart, but it is important and will bear repeating. A better method is to file small notches resembling saw-teeth on the sides of the post. This will not interfere with the adjustment of the crown and will add materially to the retention of the post in the root. The canal can also be prepared with retaining grooves cut around its sides with a wheel bur, but care should be taken to avoid cutting through the sides of the root. H. A. Cross, Chicago.

◆

Repairing Rubber Plates:—Instead of using wax to hold parts together when repairing a broken rubber plate, coat the cut edges with rubber cement and replace removed portion of plate with rubber slightly in excess of what is required when finished. Place a piece of tissue paper over the new rubber to keep plaster from adhering and flask as an ordinary case. When the flask is separated a depression will be found on the plaster in the upper part into which the tissue paper will be found. Remove the tissue paper and fill the depression with plaster, being careful to correctly outline the surface. The flask can now be closed securely and the case vulcanized.

By this method nothing except the new rubber comes in contact with the fractured or cut edges of the plate, thus insuring a stronger joint. It also takes less time than by the ordinary method.

R. M. Pearce, Rock Island, Ill.

Method of Taking a Bite:—I would suggest an improvement on Dr. Goslee's method of taking a bite as detailed by him in the June, 1903, issue of THE DENTAL REVIEW, page 515. Instead of using a hot spatula or double-pointed tacks, place a small roll of soft wax on the wax ridge of the lower base plate and have the patient close the mouth and bite. The soft wax will act as an "evener" and the operator can feel assured that all parts of the base plates are evenly pressed together. Before placing the soft wax in position, mark the median line by passing an instrument through the surface of the wax ridge of the upper base plate into the lower one. Make similar marks in the region of the second bicuspids, and if the patient changes the bite it can be restored on the articulator by adjusting the bite to the marks made as above. C. R. TAYLOR, Streator, Ill.

MEMORANDA.

THE FRATERNAL DENTAL SOCIETY OF ST. LOUIS.

This society, at its December meeting, elected the following officers for 1904: Dr. E. E. Haverstick, president; Dr. W. E. Brown, vice-president; Dr. E. P. Dameron, recording secretary; Dr. J. A. Todd, corresponding secretary; Dr. S. T. Bassett, treasurer; Drs. B. L. Thorpe, W. L. Whipple and G. H. Matthae, executive committee.

OHIO STATE DENTAL SOCIETY

The following list of officers were elected at the thirty-eighth annual meeting of the Ohio State Dental Society: President, J. F. Stephan, Cleveland, O.; first vice-president, W. T. McLean, Cincinnati, O.; second vice-president, H. L. Ambler, Cleveland, O.; secretary, S. D. Ruggles, Portsmouth, O.; treasurer, C. I. Keely, Hamilton, O.

DEATH OF DR. JOHANN FRANK.

The noted practitioner, Dr. Frank, of Vienna, died October 2, 1903, aged 61 years. Dr. Frank was prominent in the International Movement in dentistry, and his counsel will be greatly missed at the future meetings of the International Dental Federation.

A CORRECTION.

In the article of Dr. G. Alden Mills, in our December number, the microscopist of the South is given as Dr. Smith. It should be Dr. Stuart. We are pleased to make this correction because we are really glad ourselves to find out what the name was. We have previously commented on Dr. Mills' handwriting, but comment is totally inadequate to do justice to the subject. When our good friend steps up to the pearly gates about the only issue Saint Peter is likely to make will be with reference to the despair Dr. Mills has caused to editors with that pen of his.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

744,292. Anchored denture, Cassius M. Carr, Colorado Springs, Colo.

744,291. Anchored denture, Cassius M. Carr, Washington, D. C.

744,204. Dental lip and cheek supporter, James B. Jordan, Nashville, Tenn.

744,358. Dentimeter, Charles T. Kinsman, Cambridge, Mass.

745,070. Instrument for holding artificial teeth, Wm. F. McKibben, Linneus, Mo.

745,071. Instrument for holding artificial teeth, Wm. F. McKibben, Linneus, Mo.

745,722. Dental tool, Chester M. Freeman, Baltimore, Md.

745,615. Making dental dies, Clarence A. Holmes, Seattle, Wash.

746,462. Tooth-pick machine, Henry P. Churchill and I. J. Keene, Portland, Me.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Obituary.

MR. WILLIAM ASH.

BORN APRIL 18, 1819; DIED NOVEMBER 19, 1903.

We regret to announce that Mr. William Ash, the youngest son of Claudius Ash, the founder of the firm of Claudius Ash & Sons, died at his London residence, Tower House, Camden Road, N. W., on Thursday, November 19th, in his 85th year. Born in the Parish of St. James, Westminster, on the 18th of April, 1819, he was educated in London, and in due course joined his father and his brothers, George Claudius and Edward, in business.

For nearly sixty years Mr. William Ash was a familiar figure at Broad street, and all who remember him will recall his kindly and urbane manner. He ceased to take an active part in the business about ten years ago.

In addition to the business side of his life, Mr. William Ash was deeply interested in the dental profession and was very closely associated with the Dental Hospital of London from its inception. For a great many years he was an active member of the Committee of that Institution, and took a prominent part in its removal from Soho Square to Leicester Square, the result of a proposal by Mr., afterwards Sir, Edwin Saunders. At the annual general meeting of the Governors of the Hospital in 1873 Mr. Ash proposed an alternative to the Saunders plan. "His idea was to build suitable premises, rather than to convert old ones into the nearest approach to convenience they would allow. At considerable trouble he had procured plans and drawings in connection with sites to be obtained from the Metropolitan Board of Works, on which a hospital could be erected, adapted in all points to the requirements of the managing and medical staff, the students, and also the Odontological Society. . . . His proposal was discussed, but eventually the decision was given in favor of the original plan."*

Soon after his twenty-first birthday Mr. William Ash married Sarah, the daughter of Mr. James Matchwick of Guildford, Surrey, who predeceased him by only sixteen days.

Three years ago a stained glass window was inserted in the church at Heathfield, Sussex, in which parish Mr. Ash had a country residence, as a thank-offering, and in commemoration of his diamond jubilee.

Mr. William Ash leaves three sons and three daughters. Of the sons William Henry and Claudius James are at present the senior directors of the firm of Claudius Ash & Sons, Limited.

The funeral took place on Monday, November 23d, at Highgate Cemetery and was largely attended by members, relatives and friends of the family, also by many of the employees at Broad Street and some from the factory, Kentish Town

DR. J. FOSTER FLAGG.

As noted in our December issue, Dr. Flagg died at Swarthmore, Pa, on November 25, 1903. He had just passed his seventy-fifth birthday. The following sketch of his life and work, taken from *The Stomatologist,* is one of the most appreciative we have seen, and we accordingly reproduce it:

"Dr. Flagg was born in Providence, Rhode Island, in 1828, and was the son of Dr. J. F. B. Flagg and the grandson of Dr. Josiah Flagg, the first American-born dentist.

"Dr. Flagg studied medicine at Jefferson Medical College, but did not graduate, owing to being under age. While waiting for time to pass he, in 1849, became imbued with the gold fever, and in company with a large party of other like-minded men, made the voyage in the barque Wanuck through the straits of Magellan to San Francisco, the voyage occupying seven months. Dr. Flagg had many and varied experiences during his seven years in the gold fields of California, in turn mining, traveling, keeping a trading post and meanwhile acting as dentist and physician to those about him. At one time he owned a mine which he valued highly, but which gave out suddenly. At another time while engaged in ranching his crops were destroyed by grasshoppers. Despite these misfortunes Dr. Flagg returned to Philadelphia on account of his mother's illness with the full intention of returning; and though he finally decided to remain in the East, and to engage in the practice of dentistry, he never lost his interest in California and Californians, and never wearied of relating his experiences as a Forty-niner.

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*Hill's History of the Reform Movement in the Dental Profession in Great Britain, page 237.

"Having decided upon the practice of dentistry, Dr. Flagg threw himself into its pursuit with characteristic energy. He attended the Philadelphia College of Dental Surgery, now extinct, during which period he came into close contact with Dr. Robert Arthur and Dr. Elisha Townsend, who in considerable degree influenced his practice. After graduation he entered his father's office and soon acquired a large and lucrative practice, and became an expert gold worker, especially in non-cohesive foil, and administrator of chloroform, ether and nitrous oxid for the extraction of teeth. When, in 1863, Professor John H. McQuillen applied to the state legislature for a charter for the Philadelphia Dental College, Dr. Flagg rendered valuable assistance in obtaining the same. Later in the year Dr. Flagg became connected with the school as Professor of Institutes of Dentistry.

"At that time dental colleges had no financial standing and were simply an expense to their promoters. The credit due for this expenditure of time and money by the founders of our schools has perhaps not been appreciated by the younger element of the profession.

"In 1870 Dr. Flagg resigned, owing to the demands of his private practice, which was so large that several assistants have successively received full practices at his hands.

"With his resignation a reorganization of the chairs was effected and the chair of Institutes of Dentistry was abolished. Together with Dr. S. B. Palmer and Henry S. Chase, Dr. Flagg, about 1881, inaugurated the New Departure Corps, which also included Professor Henry Morton, of Stevens' Institute, and Messrs. Eckfeldt and

Dubois of the United States mint. The object of this corps was to put plastic filling upon a scientific basis, an object to which all the members of the corps gave their best efforts and for which Dr. Flagg labored unceasingly. His views met with much vigorous opposition. Passing over the merits of the contentions, it must be stated in fairness that Dr. Flagg sincerely believed in his cause, and his sincerity was evidenced by his voluntarily sacrificing the most lucrative portion of his practice to his assistants or former associates in order to devote himself to the work on plastic fillings, using his patients for experimental purposes. He constantly changed the formulas of his materials, which he manufactured himself with a view to definite knowledge of their action in the mouth. He demanded five years as a minimum period to be devoted to experimentation with each formula before the results might be announced.

"Dr. Flagg's office and laboratory was, up to a certain period, always open to anyone who might wish to call to observe methods of practice, and few were they who went away without some sample of material and useful information. At all times his formulas, when found to be valuable, were published, and at no period was secrecy maintained as to his processes. While Dr. Flagg manufactured alloys for sale and their sale was reliable and profitable to him, he spent money and time liberally in efforts to improve plastic fillings in general. Many will recall his generous weight and the extra material sent with kindly words of encouragement or good will.

"The effect of Dr. Flagg's work and that of his associates in this direction has been of inestimable value not only directly in the better and more intelligent use of plastics, but others have been stimulated to the study of the properties of plastics and their fitness for use as therapeutic agents in the treatment of dental caries.

"In 1879 the faculty of the Philadelphia Dental College was again reorganized and the chair of Dental Pathology and Therapeutics established, with Dr. Flagg as incumbent.

"As a lecturer and society debater Dr. Flagg was consistently brilliant to a degree that aroused the admiration of his hearers, and even of his antagonists. Possessed of great fluency of speech, keen and brilliant, ready wit, humor, seductive argument and fierce invective, he presented his material in such attractive form as to convince even when his position was open to some question of fact, though no doubt can be entertained that he himself felt its truth.

"During his dental career Dr. Flagg wrote many articles for the dental journals, notably a remarkable serial on Dental Pathology and Therapeutics, published in the *Dental Cosmos,* which extended over a period of nearly ten years. His writings on other subjects were numerous. He wrote a book on Plastics and Plastic Fillings, into which he put the experience of thirty years.

"About 1889 Dr. Flagg relinquished the practice of dentistry and thereafter confined himself to his college and manufacturing labors. When the college was moved to Seventeenth and Cherry streets he personally superintended the erection of a new college building, for which service he was tendered a handsome sum of money, which he accepted and then expended upon the internal adornment of the building. This fact is mentioned merely to illustrate the character of the man to those who did not personally know him.

"Those who knew Dr. Flagg personally valued him for his attainments and his kindly nature. He was a friend who truly sympathized, and when possible helped with all his strength.

"To students he was father, preceptor and teacher in one.

"With the reorganization of the college upon a new financial basis in 1896, Dr. Flagg did not feel that his age and state of health warranted his continuance in college life, and he resigned, to the great regret of his associates and of the students. Thereafter his constantly failing health confined him to his home, and, though his powers gradually failed him, his patience under the severe trial of waiting for an expected end was born of a desire to be of as little trouble as possible to those about him. In all things he was what the late Professor James E. Garretson said of him: 'One of the most unselfish men that ever lived.'

"He passed away with his eye steadily fixed upon eternity and full of hope for the life beyond.

" 'And ever near us, though unseen,
The dear immortal spirits tread;
For all the boundless universe
Is life—There are no dead.' "

Dr. T. B. Welch.

Just as we go to press we receive word of the death of Dr. T. B. Welch, of Vineland, N. J., for many years a prominent member of the profession, and the founder of *Items of Interest*. The following notice is taken from the Vineland *Evening Journal* of Dec. 30, 1903:

"Dr. Thomas Bromwell Welch died at his home in Overbrook, Pa., last evening about six o'clock. If he had lived until December 31st he would have been 78 years old. The deceased was born in Glostonbury, Somersetshire, England, and came to this country when quite young. His education was mostly obtained in the public schools of Watertown, N. Y. He later took a course in the Gouverneur Wesleyan Seminary and began to preach for the Wesleyan Methodists when 19 years old. He held different charges in New York state. After preaching a few years he took a course in the New York Central Medicine College and graduated as an M. D. in his 26th year. After practising a few years at Penn Yan, his health failed and he decided to follow dentistry, settling in Winona, Minnesota, in 1856. In 1865 he came to Vineland and established the dental business, continuing it until 1880.

"In 1881 he established a dental supply depot at 1413 Filbert street, Philadelphia, which was afterward incorporated into the Wilmington Dental Manufacturing Company. In connection with this he published *Items of Interest*, afterward *Welch's Monthly*.

"After the death of his wife he married Miss Victoria C. Sherburne in 1895. The deceased had seven children, six of whom are alive. They are Dr. George Welch, Dr. Charles E. Welch, Mrs. Dr. Emma Slade, Mrs. Milo Gould, Mrs. Dr. Thomas, Mrs. Prof. Murray. Dr. Fred Welch died several years ago. The funeral will take place at the Methodist church here to-morrow at two o'clock. The interment will be in Siloam cemetery."

AN ORIGINAL IDEA.

A new wrinkle in the art of securing a practice has just come to the notice of the writer, and it is here recorded for the benefit of those who may find it a slow process getting patients. It is mentioned as a good example of how *not* to do it. A lady book agent was in the habit of calling at houses and offering her books for sale. After canvassing the household in a literary way her talents took a literal turn, and she asked if any of the family had dental work to be done. She said that her son had just opened an office, and that she would be glad to secure patients for him among those upon whom she called to sell books. In other words, while she was anxious to fill their brains with knowledge, she was fully as anxious that her son should fill their teeth.

Now, it is the farthest thing imaginable for me to censure this good mother for what she did. It was probably done with the best of motives and from the boundless love she bore that boy. She could not be expected to know much about the ethics of professional life, and as for the abstract propriety of such a procedure—well, it was *her* boy, and she wanted to help him. But with the boy himself it is different. No young man can go through college to-day and enter practice without learning enough of the ethics of the profession to make him aware of the essential quackery of such a method.

What he should have done was to put his arm around his mother and tell her not to do that. If she asked the reason, he could say to her that such a procedure would compromise his reputation, not only with the profession, but with the very class of people whom he would ultimately wish to win as patients. It is safe to say that no substantial practice was ever built upon such a basis as that, and the sooner young practitioners learn this the better it will be for them. I trust that this young man has headed his mother off before now, but if not, he may be assured that he will soon be the laughing stock of the community.

THE

DENTAL REVIEW.

VOL. XVIII. CHICAGO, FEBRUARY 15, 1904. No. 2

ORIGINAL COMMUNICATIONS.

A PERMANENT RETAINING FIXTURE AND WHEN DEMANDED.*

BY CALVIN S. CASE, M.D., D.D.S., CHICAGO, ILL.

The irregularity of the teeth which is characterized by an abnormally wide space between the central incisors and occasionally between a central and lateral, and of which the patient will tell you that in the main it is of somewhat recent origin and "is growing gradually worse," is not difficult to temporarily correct, but is frequently impossible to retain in position without a permanently attached fixture, especially if it happens to be an inherited type, or one of long standing. This irregularity is at times an exceedingly unhappy one in appearance, besides being very liable to seriously interfere with perfect vocal enunciation. In one case which came under my notice the space was so wide that the patient was wearing an artificial extra incisor of nearly full size between the centrals.

The causes of this irregularity are: Inheritance, malocclusion, the loss of one or more back teeth and indirectly pyorrhea. In nearly every instance of my experience where the space occurred between the centrals, which is the real type of this irregularity, the patient could remember no time when the teeth adjoining the space were in contact. This original smaller space which the action of the lips for some reason does not close, may have been an inherited type, and one which predisposes to the wider opening referred to should the local cause arise.

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*Read before the Odontological Society of Chicago, April, 1903.

Of the local causes, malocclusion is the most frequent. The gradual wearing away of masticating surfaces will occasionally cause the lower teeth to act as inclined planes to the upper teeth, resulting in a general expansion of the upper arch, and the opening of this single wide space between the centrals. This will especially occur if the lower cuspids are allowed to forcibly occlude along the mesiolingual inclined planes of the upper cuspids and the lower incisors against the lingual surfaces of the uppers.

The tendency of the teeth to close spaces produced by the extraction of masticating teeth, especially if permitted or aided by the occlusal facets, is doubtless a frequent cause of this opening. In these, as in other cases, it will be found that the lower front teeth occlude against the lingual surfaces of the upper, forcing the latter to drift distally and open the incisal space. Otherwise, as is repeatedly seen, especially on the lower arch from the extraction of a molar, the entire front portion of the arch on the affected side moves back and the front teeth maintain their contact.

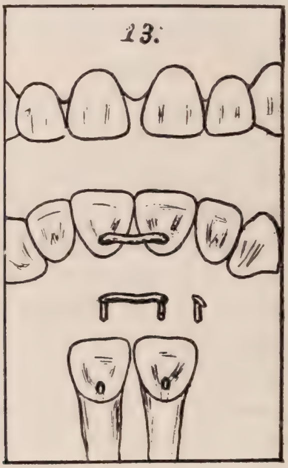

FIG 1.

A case recently presented at my clinic with a wide space between the left upper central and lateral was caused by the extraction, about two years ago, of the left first permanent molar. The remarkable feature of this case is, that the four teeth have moved distally half the width of a lateral incisor, though distinctly opposed by well-worn bicuspid occlusal facets, causing the teeth to ride upon opposing cusps and necessarily become more or less intruded.

This is a fair sample of the forces of nature to close spaces caused by the extraction of masticating teeth of which I can show many instances, resulting in decided irregularities and in some cases causing facial deformities. The force exerted by the action of the muscles of the lips and cheeks is one of the principal causes of this movement.

All dentists of experience have witnessed the tendency of pyorrhea to open abnormal spaces between the crowns of affected teeth, crowding them at times against the adjoining molars with a degree of force that can hardly be accounted for. This is, however, as liable to occur in one part of the mouth as another.

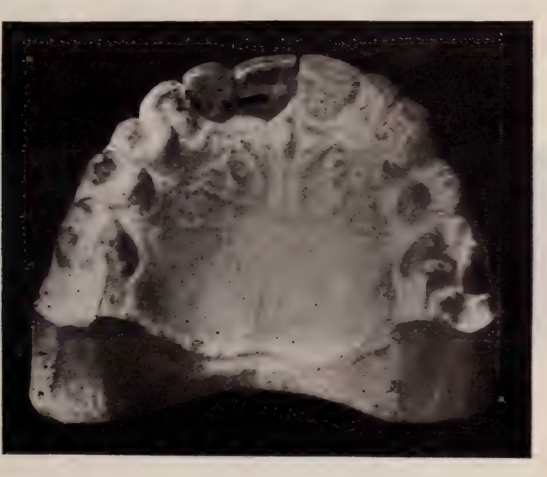

FIG. 2.

The irregularity which this paper is intended particularly to treat belongs to a distinct class in itself. It is one that is characterized by a single wide space between incisor teeth and nearly always between the centrals. See Fig. 1.

In the correction it is not difficult to bring the teeth together by very simple means, but the principal treatment should be directed to the removal of the cause or causes and final retention. If the teeth have distally drifted to close the space of an extracted tooth they should be forced back over the path of their movement and an artificial denture inserted to restore the integrity of the arch. If the occluding facets of the bicuspids have been one of the factors of movement, these should be properly ground.

If the wearing away of masticating surfaces has permitted the jaws to come closer together and the lower front teeth to act as spreaders to the uppers, it may be found imperative to extract a lower incisor and retrude all the lower front teeth to fill the space, thus making the lower arch conform to the demands of the upper and permit an opportunity for the muscles of the lips to aid in retaining these teeth in normal pose.

If there are indications of deposits of seruminal calculus upon the roots of the affected teeth with symptoms of pyorrhea—a condition which quite commonly exists, whatever the real cause of the irregularity—this should be removed and such treatment continued during the operation as the case demands.

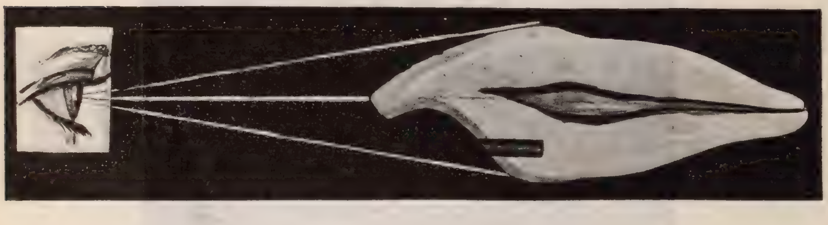

FIG. 3.

I have found that teeth which assume this special irregularity present the most continued opposition to retention after correction of any of the malpositions, even though the apparent local causes be wholly removed. This is especially true if the separation is between the central incisors and of long standing, and particularly if principally due to inheritance.

In a number of instances of this kind after retaining appliances had been removed, which held the teeth perfectly for at least two years, the teeth soon showed signs of returning to their former positions; and with no apparent cause for it other than the unaccountable forces of nature. Therefore, if we hope to correct this irregularity which frequently mars the entire facial expression and otherwise is exceedingly annoying to the patient, the proposition of permanent retention is an important factor.

Inasmuch as it will require the retaining fixture to be worn indefinitely the ordinary retaining appliances are objectionable. The retainer which I have used in these cases with the greatest satisfaction is in the form of a staple which doubtless has been used for years in various forms and positions. When constructed according to the method I propose and properly placed in position, it appears to be a small gold bar which extends from the lingual fossa of one tooth to the other. See Fig. 2.

This is made of No. 16 (B. & S.) gold wire. The ends are bent at right angles at the proper distances apart, and filed down to enter No. 19 holes bored in the teeth. The No. 16 wire is of sufficient size to permit beveling the bar to fit the marginal ridges of the teeth and conforms to the interproximate gingivae. The exposed or lingual surface of the bar is also beveled in a line with the plane of the enamel surfaces, and finished to present no greater prominences than demanded for strength. See Fig. 1.

As the operation of boring holes in the teeth sufficiently deep for permanence of retention is attended with the risk of entering the pulp chamber, or on the other hand perforating the peripheral wall of the root, special thought should be given to the anatomical structure of the teeth with the view of determining the exact location of the pulp and the relative thickness of the dentinal wall at the location of the contemplated operation.

By making a labio-lingual section of a central incisor, as shown in Fig. 3, it will be found that the thickness and shape of the linguo-cervical wall will safely permit the boring of a hole of sufficient size and depth, if started in a line with the center of the wall and carried parallel to the central axis of the tooth.

The location and direction of the proposed pit can easily be determined by the eye. In gazing root-wise at the tooth, take such a position as will bring the cutting edge exactly in the center between the gingivo-labial and lingual borders of the crown and you will be looking directly along the line of the central axis of the tooth.

Use a No. 19 (B. & S.) spear drill and start the pit in the lingual fossa at a point whose line of direction, parallel to the central axis, will leave sufficient body on the lingual side of the pit; and bore to the depth of about three millimeters, or something less than one-eighth of an inch. The labio-lingual thickness of the wall we are working in, in a typically formed central incisor of ordinary size, is about three millimeters to the depth of at least six millimeters. The diameter of a No. 19 drill is about .035 of an inch, and one millimeter is over .039 of an inch; consequently if the proper course is pursued you are safely one millimeter from either wall.

The staple being properly shaped and occasionally fitted to place as the work progresses, it is finally finished and set in cement or gutta-percha. I prefer the cement, as it offers a greater resistance to the tendency of rotation.

An appliance of this character can be made to permanently retain a number of the front upper teeth affected with pyorrhea by extending the bar and soldering to it intervening pit extensions to attach to each of the affected teeth, and it may be found to be valuable for this purpose. But for retaining ordinarily regulated teeth there is another way far preferable.

PRESIDENT'S ADDRESS.*

By S. R. Holden, D.D.S., Duluth, Minn.

The Stronger Organization of the Minnesota State Dental Association.

I have been led to the almost exclusive consideration of this subject at this time—although it had been given brief mention together with others for presentation—because of its far-reaching importance; important as affecting its future life and welfare. Fully realizing the good it has accomplished in the past, and its efforts for the betterment of our profession to-day, appreciating the ability and unselfish devotion of its members, their untiring zeal and high ideals, the fact nevertheless is driven home to us with a force and directness admitting of no denial, that it has neither the numbers nor influence we could wish it. And it is well to deal honestly with the facts.

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*Read before the Twentieth Annual Meeting Minnesota State Dental Association, Minneapolis, Minn., Sept. 1, 2, 3, 1903.

It must be agreed as indisputable that this organization as at present constituted does not hold a widely comprehensive plan sufficient to give it the power it could or should have. After a careful consideration it is apparent it has not one sound supporting factor in the State, but stands alone, lacking the essentials necessary for its growth and continued up-lift. And the results of its efforts, at times, seem almost nil. There never has been a time in its history, in so far as is determinable, when a well-conceived, thoroughly systematized, and persistent effort has been made to create a comprehensive practical organization.

It is a notable fact that Minnesota is possessed of a large number of men—actively pursuing the practice of dentistry—of marked ability as skilled operators, crown and bridge workers, brilliant essayists, and teachers; prominent in all walks of life, respected and held in the highest esteem by their respective communities, who are not, many of them, in any way identified with this association or its work. The reason for this would seem ascribable largely to indifference through various causes. If these men were lacking in appreciation of the value of the things we were offering, it would not be becoming in us to go out and urge them in. No, but if certain conditions were existent, it would be found that many of them would be recognzed as our most valued supporters. Conditions must be changed before we can expect their aid.

Does it not occur to us that we are continually using our energies to rear and develop the superstructure at the expense of the base? Our minds are so constantly occupied with the figures and fancies of the clouds, we are apt to overlook the all-important material side. To-day, even in matters pertaining to the soul, careful provision is made and jealously guarded for its material welfare. We must produce and develop a sound, sensible business policy, otherwise this material of the superstructure will fall about us as fast as we can build, resulting in a comparatively vain and wasted effort in which we at last must realize our endeavors have been as naught, that we have been engaged in a series of endless wanderings, traveling in a circle, which of necessity brings us to the point from which we started, a sort of "fool's errand." This Association deserves a worthier fate.

If every member—or even the majority of the profession within our State—could but give their cheerful and loyal support to the mother organization, it would tell for the future well-being of dentistry as nothing else could. Constant and unremitting effort is required for the procurement of new members in numbers sufficient to fill the places of those who for one reason or another fail to attend these meetings, or sever their connection altogether.

Many seem content to go on from day to day with the knowledge gained in the college, but it is to be borne in mind that dentistry is a progressive science. So rapidly are facts rushing in upon us that in all directions in the scientific world theories are tottering and crumbling and truth is manifesting itself in a manner and with a rapidity never before dreamed of. By a succession of discoveries does science advance, each new discovery furnishing a vantage point and suggestion to further discoveries, and to this mode of advance there are no limits, for the materials upon which science, the phenomena of nature, works, are infinite in extent and complexity. To appreciate the progress of science and what it is doing for the world it is necessary that we come together through the guidance of the organization to examine every statement, criticise it and prove it false or true by the reasoning together of those competent to judge. Listening to a statement with the resultant exchange of opinions is far more satisfactory and beneficial because of the greater educational power in analyzation by numbers through word of mouth, than when in print the individual reader is obliged to analyze it by himself, in the latter case many times receiving false impressions and rendering an interpretation not in accordance with the facts. And until all of nature's secrets are ours, all branches of science will continue to advance and unfold, by reason of which it devolves upon us to be ready to meet these conditions in the large and so operate as to keep the profession within our jurisdictional limits in touch with the better of the new. In just so far as we neglect so to do, in just so far are we remiss in our plain duty.

It is a work which lies before us, and we must accomplish the task. It would seem that there could be no better way to do this than by giving our energies to the lines of hard practical work, and it is this kind of work of which we are in need. A strong business policy would be advantageous.

SOME OF THE OBJECTS AND BENEFITS TO BE DERIVED FROM A WELL ORGANIZED BODY.

Coming together in societies broadens the mind, making it more receptive to the opinions and abilities of others, together with the recognition of our own shortcomings. It stimulates in the work of study and investigation and nerves us with ambition to keep up with the leaders. We resolve afresh to renew our efforts not to become morbid or too self-reliant. Self-reliance is a requisite, but it is possible to so rely on ourselves as to hinder our steady progress. A man brought into contact with others is made to realize that they are also of knowledge and achievements. He learns to respect them and cultivates a manner of deference and courtesy. An organization of this character should be held as a sort of post graduate school in which the education begun in the dental college can be taken up and carried on. When this condition fully obtains the cost to those attending would be insignificant, and the society would possess abundant means and talent to carry forward the work on the highest plane.

POLITICAL INFLUENCE.

In using the word political it must be taken in its broader, better sense. If this matter of organization is earnestly taken up we will be able to exert an influence on the law-making powers that we do not now possess. When a demand is made for prosecution, the enforcement of the law, and speedy action against offenders, we would have the satisfaction of seeing it given the proper attention. You may say what you will as to its being the prosecuting attorney's duty to attend to these things, they will do nothing of the kind except possibly in a few instances. Why? Because a united profession does not demand it. Furthermore the individual member who takes anything of this kind upon himself generally lives to regret it, and it ought not to be expected of him. Work along the lines of unity politically is one of the prime necessities. There must be co-operation among local, district and state societies. History teaches that in the efforts of men for growth and betterment, combination and cohesion mean success, and the lack of unity and purpose means failure. Never have these facts been so forcefully presented and so clearly emphasized as in the present day movements and conditions of the world's forces. Knowing and realizing this full well are we to remain passive and inactive?

SOCIAL.

The prevalence of petty jealousies is another thing to be deplored and will be found to be due largely to misunderstanding. There are always those ready who have nothing better to do than to go about creating prejudices that are apt to grow into bitter and deadly animosities. Humanity is pretty much the same the world over, and few of us are as black as our enemies paint us. In the smaller communities these troubles are more readily detected. It is in large measure the eradication of such that the fraternizing spirit should be created and fostered. Nothing like coming together in a friendly way, shaking hands, talking it over and coming to an amicable understanding. It quickens the heart, broadens the mind, and life is given an altogether new coloring and meaning. Littleness is a stalking sin.

In a live local dental society there is a decided tendency to banish local jealousies, particularly if attention is given to social features. In "crossing legs under the same table, breaking bread together," childish animosities will disappear as if by magic. Some of the advantages of the local society are an advanced standing in the community, support from professional brethren, new ideas from the papers and discussions, a stirring up, brightening and quickening of the intellect which mean in part a better ability and readiness to defend what we conceive to be right. A professional man by himself is like a "single coin" in a purse, soon becoming "dull and rusty." A society is like a full purse, "the coins are kept bright by contact with one another." To the member of a local society keenly alive to the constant advancement his profession is making will come a larger remuneration for his services. More and more are his patrons appreciating his abilities and in proportion to this appreciation are they giving him their support. This growing recognition of his worth he perceives lies much within himself.

The importance of dental societies would seem self-evident. Remembering the objects of organization, the conclusion points clearly to the fact that the district society is the most important of all the dental bodies. Of course the State and National societies are of vital importance, but their greatest value consists in the fact that in them is centered the influence and power of the district and local societies, while in turn through them the district society can be created, encouraged and supported. The creation of the district body means that every dentist is furnished the opportunity of membership together with the professional and material benefits derived thereby, and with but a small sacrifice of time and money. It also furnishes the means to reach those who are indifferent or apathetic and ignorant of the real and lasting benefits of association. It is the means through which the dental laws can be promptly and effectually guarded, and quackery eradicated. And it is through the district society that a careful and complete record can be kept of those legally qualified to practice, together with their standing, etc.

As a basis for the successful and permanent system of organization, the district society is the corner stone, the united district societies to make the state society, and the united state societies to make the national society. "A unit in the trinity and a trinity in the unity," independent yet interdependent, but making one complete organization.

PLAN OF ORGANIZATION.

A plan of organization is hereby submitted as a beginning for the thorough and practical organization of the dental profession of the State of Minnesota. And it is earnestly hoped before this session shall have closed that suitable provision will be made empowering the in-coming President, or in other manner as may be deemed best, to appoint a committee of a workable number looking to the accomplishment of such organization. A great deal could here be given as to how to bring about this much desired condition, but time forbids, and it can as well be considered by those to be given charge of this work, and later submitted to the society for its judgment and action.

To begin with, we find the State of Minnesota in round numbers to be in the neighborhood of four hundred miles from north to south and about three hundred and sixty miles from east to west. Divide the State into districts say of forty miles in width, which would give forty miles to the district. Let the southerly forty miles form district number one from east to west. The next forty miles north of that form district number two, progressing up to the northern boundary in this manner. Now let lines be drawn from north to south every forty miles to determine the number of blocks this would give us. In the centre of each of these districts there should be a chairman who is a member of the State society. One of the functions or duties of these district chairmen would be to report to the State society the number of dentists in his jurisdiction, the number of local societies, together with the number of times they meet each year. Each district ought to and could have its local societies, these local societies holding meetings at least once a month; but all members of the district society should and would realize it to their advantage to meet once a year. In the matter of appointments of the district chairmen the greatest care is to be exercised to select such men as are active workers, who have sufficient appreciation of business methods and energy to apply them, and who will realize the needs of the profession of their apportioned territory, otherwise any effort on our part would be of a nugatory character. It can be readily understood that the work of any one of these districts would be more than one man could well take care of, especially in the inauguration of the work, making it necessary to have assistance, the personnel and number to be left largely to the discretion of the district chairman, as he would be more familiar with the abilities of those of his district than officials further removed. There could be any number of local societies as auxiliaries to the district society, and the men chosen for the head of the former should in turn be possessed of a practical business-like turn of mind, and of executive ability. After these local and district societies have been put upon a good working basis, permit no man a membership in the State society except by indorsement of certificate of membership of the district society. When the profession of the state is organized upon some such plan as the foregoing, the State society will then be in position to know exactly where all the men of ability as essayists, clinicians, etc., are. This is a brief and general outline. I would suggest that this matter be put in comprehensive form by those who shall be given the necessary authority in the coming year, and the results of their labors presented to this Association for its consideration and action at its next annual meeting.

RECIPROCITY IN DENTAL REGISTRATION.

Touching this question, just a few words: Reciprocity in dental registration is certain to be established, and in all probability at no very distant day; in fact, the forerunner of this is in evidence in the attention being given to the subject in our various publications. At first thought it would seem no more than fair and equable that if a man has been adjudged competent to practice in one state he ought to have the right to practice in any other state. As to interstate reciprocity, "this," as Dr. Brophy has recently said, "undoubtedly is a good idea. If a man is able to meet the requirements of a state board of dental examiners and is given a license to practice in that state by its board, it would appear that boards of other states should accept such credentials and grant their license without the formaliy of an examination. If the state has not a board which merits confidence of the board of other states, there is cause for the profession of that state to hold in question the subservience of its interests and reason for it to endeavor to bring about improvement." The real trouble is the lack of expressed uniformity in the requirements of the different states. And reciprocity of an indiscriminate character would undoubtedly have the effect of driving the applicants for license from a state demanding strict requirements to those holding lesser, which would certainly act to the detriment of dental education. It would prove a long step backward. However, this need not militate against reciprocity—between two or more states, of optional character—if the various requirements necessary for the granting of a license are practically uniform. In the medical profession reciprocity exists between the states of Wisconsin, Indiana, Michigan, Ohio, Iowa and Kansas. These states have formed what is known as "The American Federation of Reciprocating, Examining and Licensing Boards."

Universal reciprocity is desirable, but it will require considerable care in bringing it to a reality. In the meantime it would seem good judgment and be no more than right for the states holding these same requirements to grant reciprocal registration. And as soon as this Association can conscientiously feel this to be wise and beneficial, it is hoped it will put itself upon record in favor of such step.

In closing I wish to thank all of the officers and any others who have so generously given of their time—and in this I feel I am but expressing the sentiment of all—for their careful, painstaking and markedly successful efforts, resulting in this splendid program before us. It is replete with everything of interest and worth, and reflects greatest credit upon those having it in charge.

DIET, DENTURES AND DISPOSITION.*

By B. J. Cigrand, B.S., M.S., D.D.S., Chicago, Ill.

The title of the paper may seem to indicate that the subject matter would be of a nature more appropriate from the pen of a physician, or one that should have been presented at a medical society; but I assure you that the article covers ground contained within the limits of the science of dentistry. The dentist has equal rights with the physician or surgeon in operations or treatments within the oral cavity. And if we were to practice our profession to the fullest latitude of the definition of dentistry, I fear we would be likely to give attention to parts quite distant from the teeth. But it is my purpose to remain close to our occupation, and show how we as dentists can direct and possibly educate the general public up to an appreciation of the science of dentistry.

If we are supposed to be concerned with matters pertaining to the teeth, I for one cannot see why we shall not look after the diet of our patients, for what comes in closer touch with our work than food? Diet, as we all well know, is the food and the drink taken regularly with a view of sustaining life.

That our teeth depend largely upon our mental and physical condition none will at this late period of the nineteenth century deny, and that in turn our mental and physical conditions are most decidedly affected by our diet, can be demonstrated; and in this chain of dependence we recognize that all organs or parts of organs are influenced by the surrounding physiological circumstances, and these are acted upon primarily by the food we eat.

In the living organism the forces of destruction and renovation are constantly at work. Every action, be it mental or physical, necessitates destruction; and the tissue or part which has been affected must of necessity be restored or the waste would be greater than the repair, which would mean early decay and death. A wise arrangement in nature provides for this loss, and rebuilds the broken-down tissues of the body continually. By this process of animal restoration, so far as weight is concerned, the body might be renewed several times in a week; but the pounds of food we eat are not all nutriment to the human frame. A considerable portion of that which we eat is innutritious, and though useful in various processes, is not destined to repair the losses of the general system. To meet these constant chemical changes two materials are essential, food and air; and during the first half of our lives the repair somewhat exceeds the waste, and our beings grow larger, stronger and heavier; while in the latter portion of life the opposite force seems to govern our destinies.

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*Read before the Odontographic Society, Chicago, April 20, 1903. Illustrated by 60 views.

Nutrition and repair have come to mean the same, and both are symbols of life. The rapidity with which these changes are carried on is far greater than is usually supposed. Paley, in his Natural Theology, claims that the entire living organism is renewed in seven years; but recent investigation has cast aside the mystical figure seven, and has substituted in its place the word "time." The time requisite to renew the body is placed at something less than one year. It would be absurd to fix a certain duration of time, since renovation of the body depends upon many factors, among which are age, occupation and climate. Changes take place more rapidly in the infant than in the aged, in the active more rapidly than in the indolent, in the warm climates sooner than in the cold; and again, the several organs of the body and their respective secretions do not all suffer the same changes, nor are they effected in a like period of time.

The fluids and secretions are often and rapidly replaced; the epithelial lining of the alimentary tract is wasted and repaired several times in one day; the muscular tissues endure well the force of retrogradation, the bones are very fixed in their composition and undergo the differentiation very slowly, while the dentine and enamel of the teeth suffer little after fully developed. It is in this latter truth that we are especially interested, for we find that destructive metamorphosis far exceeds the constructive metamorphosis, at least such seems to be the testimony borne out by the present as well as the rising generations. Since the teeth are, of all other organs of the body, the least repaired physiologically, it behooves us to ascertain how best we can induce a healthy and perfect growth of these most important functions of life.

We subsist on two classes of foods, the one is in a solid and the other in a liquid form, and both are essential to health and longevity. There are a few products of our soil which are especially adapted to support life and keep the body in a vigorous condition. Among the solids which are possessed with the requisite elements of the teeth are wheat and rice, and among the liquids we find milk and water. Now it is all-important that the teeth while yet in embryo should receive nutriment calculated to assist in constructing the several earthy components of the teeth. This truth needs to be more clearly impressed on the minds of all who are concerned in hygienic condition of the teeth. The initial development of these organs begins in early embryonic life, and it must not be forgotten that the diet of the mothers largely contributes to the welfare of the child's teeth. Her foods should be of a very wholesome nature and especially impregnated with a sufficient quantity of phosphates and fluorides and carbonates, which enter largely into the formation of bones and teeth; and the child subsequent to its birth should be fed on foods of like character, and the mother while yet nurturing the babe should continue her diet of earthy constituents. As the child grows into youth, a continued regard should be paid to the further use of foods freighted with elements which assist in forming perfect dentine and enamel. This diet must be continued throughout the period of dentition, if it is to be hoped that strong and effective tooth structure be developed. A diet of this nature might be kept up until the child is about twelve years of age, and heeding this truth, excellent results would follow.

After the teeth have fully erupted our diet has but a passive influence on the dentine or enamel; when once fully developed they are freed from the epithelial layer, and when the crown has fully erupted it is completely separated from all vascular tissue, and it is no longer dependent on the circulatory system; in consequence of which there can be no restoration of broken-down enamel tissue. It may be stated as a physiological maxim, "there can be no constructive metamorphosis where there is no blood supply;" and since the enamel does not possess this agency of reproduction, its destiny is in the power of external forces.

The dentine is, however, in immediate touch with the circulation, as it envelops the dental pulp, and is supplied, to a limited extent, with vascularity; yet there is no capillary circulation within the texture of the dentine, and it, like the enamel, suffers waste and decay without receiving the aid of the restorative functions of the blood. Nature provides that, in the event of the enamel being worn down to such a degree as to disclose the dentine, the living pulp is protected from the abuse of the outer world by minute granulations of dentine deposited on the walls of the pulp chamber, thus sheltering the living pulp. These depositions of secondary dentine encroach upon the space occupied by the pulp, and if the formation of new dentine is stimulated by irritation of the dentinal tubuli, and the formative process continues sufficiently long, the entire pulp chamber becomes filled with calcic phosphates. But the broken-down dentine is never rebuilt at the point of destruction, the new formation being at the inner ends of the dentinal tubuli opposite to the wasting ends.

This irritation may be in the nature of cold or icy foods, such as ice cream, or the same may be caused by hot drinks or foods, which many people indulge in too freely. Foods which are considerably colder than the human system, or warmer, should be discarded, since they not only irritate the dental pulp but frequently crack the enamel prisms.

This is essentially an age of "white bread" and "extra fine flour;" and it is a period therefore in which we are no longer partaking of anything like the same amount of bran that our ancestors did, and in consequence are deprived of the chemical element which husks contain, namely: Flourine. It has been demonstrated that flourine occurs in nature in very sparing quantities, and the only natural channel by which it can find its way into the human body is through the husks of grain, in which it exists in comparative abundance. Our people at present have a dislike for all siliceous or gritty foods and are addicted to soft and succulent nutriments, which do not afford the teeth proper exercise, and the latter influence on the normality of the dental organs is of late attracting considerable attention. The teeth must be employed as instruments of mastication or there will be a systemic tendency toward their elimination; and if the circulatory system were in immediate communication with the enamel and dentine, there would be a marked effort on the part of nature to make them rudimentary. Hence the husks of grain, or foods which require a considerable amount of chewing, exert an agreeable influence on the teeth; and flour which does not contain some of the portions of the husks or its immediate layer fails to supply flourine to the growing dental germ, incurring feeble and imperfect health of the tooth structure.

Such is the direct or physiological influence of our diet on the dental organs, but food exerts an indirect or pathological influence which is fully as important for us to understand.

As an instance of this indirect effect, the disease known as dyspepsia affords us a good example, showing how our diet may act as an exciting cause of dental caries, many people suffering from this ailment; and in this country this difficulty has become so prevalent that in Europe it is seldom known by any other name than the "Yankee disease." Patients afflicted with dyspepsia invariably present soft and imperfect enamel and dentine. The cause is traced to the acidity of the stomach in dyspepsia. The acidity of the stomach is due to the diet, the latter being of a character which entirely exhausts the capacity of the gastric juice of the stomach; the foods usually inducing this trouble are pies, cakes, candies and other favorites of a so-called "sweet mouth." These foods lie in the stomach for a period varying from three to four hours, and during this period fermentation sets in and an acid is formed. The gastric juice contains a large quantity of hydrochloric acid, and the acid resulting from the food ferment adds to the acidity of the stomach. The patient generally suffers from water-brash, flatulency or ptysis, and by this eructation the acid of the stomach is forced into the mouth and there completely bathes the dental organs, whose outer armor cannot resist the action of acid, and the lime salts being dissolved, dental decay has been initiated.

Man's disposition is as much evidenced by the choice of his foods as by the selection of his work. The two are practically one. The choice of his food is in perfect harmony with his physical and mental inclinations, and consequently the former is the energy with which he accomplishes the latter. Besides the character and outline of his teeth, their moving and occlusal surfaces indicate to a certainty the preferences of his foods. This is best studied in the lower animal kingdom, since they live in perfect naturalness and have not been disturbed by conventionalities. The sharp, pointed teeth of the canine family, with jaws that have simply the ginglimoid movement, proclaim to those who understand the text theorem of mastication that meat is their favorite sustainer. The flat and cuspless molars of the grain and cereal eating animals state clearly the disposition of the animal. Comparative anatomy really forms the system construction of perfect knowledge of human anatomy. The temperaments of people, in consequence, have a strong resemblance if not relationship to animal disposition.

The law of harmony thus found in nature between the teeth and other physical characteristics requires due respect to size, shape, color and other qualities in an artificial denture in order that it shall correspond with other indications of temperament.

In a recent article I arranged this table of temperaments:

The Motive Temperament.—To the ancients it was known as the muscolo temperament. Persons of this quality of body and mind are "human powers," strength and endurance their peculiar characteristics, constitutional powers and great muscular strength. Tall and angular, active, steady and firm. Facial contour, square, angular and high cheek bones. Complexion, dark and sallow. Quality of voice, strong and full of vibration. Nose, strong and usually Roman. Eyes, dark and piercing. Hair, dark, coarse and abundant. Fingers, long and knotty. Teeth angular, three sharp cusps; appetite, inclined to eat liberally of meat. Favorable characteristics, energetic, persevering, executive and ambitious. Unfavorable characteristics, extreme in expression and often domineering. Example of type, Old Roman. Comparative anatomy, the bull dog. Human example, Daniel Webster.

The Mental Temperament.—To the ancients known as the nervous temperament. This temperament might be called the sensitive, refined or brainy. External indication, well developed nervous system, studious and refined expression. Constitutional outline, full and graceful figure. General movements, quick, active, decided and restless. Facial contour, delicate, oval and finely cut. Complexion, abounding in grayish tint, lack of flush. Quality of voice, strong, clear, high pitched and melodious. Nose, well developed, usually Grecian. Eyes, bright, expressive, usually gray or blue. Hair, not abundant, and fine in texture, usually brown. Fingers, long and thin. Teeth abounding in oval outlines, appetite inclined to the fruits. Favorable characteristics, refined, imaginative, scholarly and studious. Unfavorable characteristics, sensitive, aspiring, and often eccentric. Example of type, American people. Comparative anatomy, the pointer. Human example, Longfellow.

The Sanguine Temperament.—To the ancients known as the plethoric temperament. This temperament might be called the sanguine, hyperæmic or cardiac. External indications, flush and florid complexion. Constitutional outline, medium in height and lively, general movements active and easy. Facial contour, round, with full forehead. Complexion, florid and animated. Quality of voice, soft and clear. Nose, rather small, usually Grecian. Eyes, usually blue. Teeth, poor cusps, width predominating over length. Appetite, cereals. Fingers, medium in length and rounded. Favorable characteristics, mirthful, social and friendly. Unfavorable characteristics, passionate and high-tempered. Examples of type, Danes and Germans. Comparative anatomy, shepherd dog. Human example, John Adams.

The Lymphatic Temperament.—To the ancients known as the phlegmatic. This temperament might be called stomachic or digestive. External indications, round and well-developed jaws. Constitutional outlines, fleshy and bulky, general movements slow and sluggish. Hair, coarse, straight and drab. Fingers short, flabby and cold. Teeth, scarcely any cusps. Wider and thicker than the sanguine. Appetite, succulent foods. Favorable characteristics, contented, agreeable and jolly. Unfavorable characteristics, sluggish, lazy and unenergetic. Example of type, Esquimaux. Comparative anatomy, swine. Human example, Henry the Eighth of England.

Strange as it may seem, I have observed that the motive temperament is the one most changed after depending upon artificial dentures. I have arrived at this conclusion after a most careful examination of the facts of the case. The deductions I have made are based on answers furnished me by people wearing full sets of artificial teeth. I have not projected a theory, and then gone forth to find material to prove it true, but have for years collected all possible notes, observed closely, and compared freely before I permitted myself to form a conclusion. That change in diet of necessity changes disposition, if not even the temperament, I am thoroughly satisfied. Example of this we have at our command from comparative anatomy. The dog tribe desire meat as a food. If this is denied them and they are fed on bread and cereal food stuffs, the dog propensities are shortly changed, and if the food first given him is changed for a period of years, his entire animal disposition has been re-created. If you again substitute for the cereal foods the meat diet, he will in several months return to his original inclination, and instead of being merely watchful and alert, becomes ugly, disagreeable, and even savage. And what is true of the dog is true of the feline tribe and other animal classes. To arrive at some definite knowledge as to what change takes place in people of the motive temperament, who, like the dog, are inclined to meat eating, I have studiously inquired into this feature of things. For some four years I have made it a practice to inquire of such of my patrons as wear full sets of artificial teeth (whether made by myself or not) the following questions:

1. In what particular has the wearing of artificial dentures affected the choice of your foods?

2. Have you observed that your disposition has in any sense been influenced by their use?

3. Have they interfered or aided you in your vocation? If so, state clearly how and why.

4. Mention any other features relative to your artificial dentures which appeal to you in connection with your change in diet or disposition.

From this source I have gained many interesting points. Nearly all of these patrons replied that they did not eat as much meat as previous to the loss of their natural teeth, that they observed that their sleep was sounder and that they were less nervous. One attorney wrote me, saying: "Before I had my teeth extracted, I suffered for years from insomnia, and since I am wearing artificial substitutes, my sleep is splendid. I presume I must have been suffering from some form or other of neuralgia, for my teeth never gave me much pain, and the dentist who extracted them did so because the roots were not sufficiently strong to warrant bridge work." Now I am convinced that this attorney was cured from insomnia, not because of any disturbing tooth or annoying roots, but primarily from a change in diet, he admitting to me that he was a heavy meat eater before he lost his teeth. The change in diet from meat to fruit and cereals was making it possible for his stomach and alimentary tract to rest and recuperate from the heavy strain of cooked meats. Besides, the reflex action of an overworked stomach acted most decisively on the brain, and insomnia simply developed because of a repetition of mental disturbances. Besides, his life work being largely indoor and clerical, engaging the mental capacities and not having sufficient exercise to exhaust this meat energy, he was destroying his nervous system by indiscreet choice of food.

That is one of the sins of city life. We eat more meat than our physical economy requires. In consequence a variety of mental and oral disturbances follow. People who eat an abundance of meat must indulge in vigorous bodily labor or they will suffer from uric acid absorption and possibly inaugurate pyorrhea alveolaris.

Many writers define a motive temperament or meat eating temperament as the bilious temperament. This is a mistake, since biliousness is nothing more than a disturbed liver, and this ailment can befall any one of the four temperaments. Biliousnes is a symptom of disease, but cannot under any circumstances be the symbol of a predominating quality of mind or body. This is what a temperament is, or it is nothing. It is an historic fact that General George Washington's disposition was markedly changed after depending on artificial teeth, poorly constructed as they were, for his life and energy. He was fond of meats, and after the loss of his teeth was compelled to initiate a new diet. In his writings he tells us that even battles were delayed because of his indisposition, which was invariably an acute attack of dyspepsia. Repetitions of these attacks manifested themselves when he was President of the United States, and the strong, determined and courageous Washington of early Revolutionary times was changed into one of conservative, quiet and indisposed temperament. Tuckerman says: "We do not know how much we lost because of ill-fitting dentures which Washington was compelled to wear. His hearty appetite was gone and a more satisfied mood came within his being."

The mental temperament is also changed when depending upon artificial teeth, not so much because of a change of diet as because of a disturbance of nerve centers, since in the mental temperament nature has really made a person into a bundle of nerves. The very presence of a lower or upper denture has an irritating effect upon the entire being of that person. A number of people who are of this disposition wrote me remarkable deductions.

A prominent attorney of this city says: "I am naturally nervous, and although my teeth give me no pain and rest comfortable, and are satisfying in every particular, they interfere with my thought. When I stand before a jury, fired to a point of sweeping conviction, my mind is occupied in the dual performance of speaking to my auditors and thinking of my teeth." So in this temperament the nerves, not the alimentary tract, are disturbed. I will also recite to you an incident which occurred in my office some time since, which portrays a remarkable condition arising from the loss of teeth. In fact, I believe that the loss of teeth, which necessitates the severance of all the nerve centers connecting the roots, must of necessity change the physical aptitude in these nerves in the brain. The amputation of upwards of sixty nerve fibers, one for each respective root of the thirty-two teeth, necessitates the trunk lines to become dormant, and this certainly affects the nerves of the head and face. I have had patients tell me that on the appearance of new fruit, such as apples, they would intuitively bite into them, forgetting their artificial dentures. This simply goes to corroborate what Doctor Steele says in his text-book physiology, that the brain never fully recovers the loss or severance of any nerve fiber. This he clearly exemplifies by the bold knight who, after having lost his left arm, in a heated moment of excitement let go of the reins with his right, expecting to grasp them with his left.

Another answer which interested me intensely came from a violinist of considerable note, and contained a statement which absolutely surprised me. He is a gentleman of about forty-seven years, and has devoted his entire life to violin harmony. Some four years ago he was obliged to have his natural teeth extracted, necessitating artificial substitutes. He observed that his musical disposition was interfered with. Strange as it may seem, he noticed that his musical ear was less certain regarding delicate notes. He could not account for the loss of this important faculty, and he insisted that it was due to the artificial dentures—at any rate, subsequent to the loss of his natural teeth, his distinguishing talent was lessened. He called a number of times, and we had interesting interviews, though could not arrive at any conclusion. I called at his home and had the pleasure of hearing him play, but I could make no deduction.

Just before taking leave, he chanced to remark that when he was rendering fine or high pitch notes on the E string, he used to allow his chin to rest firmly on the trunk of the violin. Beyond this he could say nothing, except that the artificial teeth were interfering with his musical genius. The statement at first amused me, but after some few days of meditation, I was impressed with a possibility of the jaw and the teeth acting as attributes to the auditory nerve. After reading up the regional anatomy of the ear and acquainting myself somewhat with the text elements of hearing, I felt inclined to accept the theory that the eustachian tube rendered a function in this particular. In fact, recent discoveries along the line of oral aid to hearing, induced me to believe that the eustachian tube was responsible for many sound registrations in people suffering from deafness. Still, how could the violinist suffer the loss of his distinguishing talent when the eustachian tube and the surrounding muscles were unharmed? Finally the solution dawned. The natural teeth are a splendid example of gomphosis. They are of a bone or ivory texture set into a bone, also of ivory texture. When the violinist rests his chin or mandible on the violin, the tone vibrations travel readily through the inferior maxilla, conducting the sounds through the inferior to the superior dental organs and thence to the bones of the head surrounding the auditory nerve. I then experimented with two violinists who still possessed natural occlusion, and placed unvulcanized rubber (a non-conductor of sound) between the teeth and awaited results. Both musicians observed a lessening of distinguishing power. This clearly demonstrated that in the case of playing the vibrating musical instrument, the violin, the teeth act as a sound transmitter, and are directly responsible for vibratory registrations in the brain. I am unable to say how the natural teeth affect or assist in the rendering of music on other instruments which are not directly played by the aid of the mouth, but I am satisfied beyond a doubt that in the case of violin music, where the notes are not ready-made as in the piano and organ, the natural teeth play an important part.

In a paper before the Hayden Dental Society in 1897, I said: "The greatest possible good will result from an investigation of dietetics and dentures; the study of dietetics should be a part of the dental student's curriculum, in order that he may learn of the influence of diet on the teeth." If we are to be practicers of dental surgery, it is within our sphere to direct our patrons concerning their diet; we can do more for humanity by teaching them the purpose of prevention than by giving them the purpose of the cure. I believe the old saw, that "An ounce of prevention is worth a pound of cure," should read, "A grain of prevention is worth ten pounds of cure."

The nation in which we live does not fully appreciate the underlying principles of the laws of proper diet. In no land under the sun is there such utter disregard of the standing resolutions of good health in regard to diet as in the United States. The banquet boards throughout our country give evidence of gross violations of every tenet of physiology. In fact, the character as well as the manner in which most of the prandial is served stamps this epochal day in civilization little short of barbaric, and I am not so sure but that if we observed the dietary regulations of the animal kingdom, we might not return to the ancient records of longevity. But our government, like most of the governments, is intensely interested in the opposite condition of things. Any theory or principle which is advanced in favor of prolonging or preserving life does not appeal to the central government. The legislative bodies, as well as the executive heads, are wrapped up in invention calculated to destroy and annihilate human life.

Recently the German government paid the fabulous price of 160,000 marks for the mere privilege of seeing the pattern of a destructive submarine cruiser. If the same inventor had discovered a panacea for pyorrhea alveolaris, the disease which is threatening the existence of the civilized population, the genius would not have merited even as much as an audience with the Emperor. This condition is not alone in Germany, but all the so-called civilized nations share in this same selfish tendency. If you desire high pay for your toils and tasks, design some agent of death and you will be quickly taken to the bosom of some congressional committee.

Ask yourself this question: "What has the German Empire done for Dr. Miller, and what has the French Republic done for Pasteur, what has the English Empire done for Williams, or what has our own country done for Black?" The present populations of the civilized world will never be able to pay the debt of gratitude they owe to the chemists, physicians, surgeons and scientists. The time and labor, say nothing of the financial loss, which these great lives have sustained in their endeavor to wrest humanity from the ravages of disease and decay, the world will never know, since their humanitarian spirit forbade them keeping an expense account. Is this justice, and where is the element of equity? The least that these governments might do would be to liberally pension them after two score and ten. If the governments were more concerned about the life of the citizens, and not so much after their commercial welfare, the word civilization might become a proper noun. How primarily wiser and better would be our grand republic if it had created, instead of a ministry of commerce, a ministry of health.

The death rate from a variety of diseases inaugurated by dietetics is ten-fold greater in this country compared on annual basis than in any war, not excepting the Rebellion. This intelligent assemblage of specialists does not require a detailed account nor lengthy elaborations on the effect that oral and dental diseases are having on the disposition and destiny of our people. If the cabinet contained a secretary of health, and the general government at Washington inaugurated a trained service of dental and medical specialists, a department calculated to direct our people in the choice of their foods in the changing seasons, and studied consumption, pyorrhea alveolaris and other ravaging and man-eating diseases due primarily to indigestion or ignorant choice of foods, we would grow strong and athletic as the Romans of old. For we must appreciate the fact that no nation has greater fortitude than she has strength stored in her soldiery.

The recent war with Spain clearly demonstrates the low par of the American in his physical being as compared with that same American who enlisted in '61. And why is this? Careful study leads us to the answer. The present population of the United States is surging toward the cities, where they grow up confined in their abodes and restricted in their appetites; the corruption of the air completely changing their physical being; the pollution of the waters and the impure foods and vegetables acting as confederates in this siege of destruction. The result was, when the war was declared the bulk of the enlisted boys came from the precincts of over-crowded and congested cities, while in the Civil War the boys rushed forth from the farms, hardy, strong, vigorous and athletic. I need not emphasize to you the great army of boys who were refused enlistment in the war with Spain. Thousands of them were cast aside because of their imperfect dental organs, these 88 per cent coming from the cities. This aids in corroborating that not only was their physical being below weight and measurement, but their life of haste, hurry and hustle, together with the five-minute lunches, has destroyed their powers of mastication. Truth is oft stranger than fiction, for the comparison of soldier boys of '61 and '98 verifies this old adage. These cold facts tend to rouse one to a better appreciation of the laws of nature, for no man violates these without paying the full penalty. There is no mediating judge, no compromising jury, no changing or deviation. The decree of Providence comes and is fulfilled.

I believe the true keynote of progress in any field of thought or science is summed up most emphatically in these choice words of Mr. Bulwer to specialists: "As far as you can—partly for the excellence in your mental calling, principally for the completion of your end in existence—while improving one talent to enrich your whole capital as a man, don't be narrow-minded as the Chinese, who in teaching geography to their rising generation, place on the map of the world the Celestial Empire, with all its Tartaric villages in full detail, and outside of that limit make dots and lines with superscriptions, 'deserts unknown; inhabited by barbarics.'"

It is evident that the medical fraternity would oppose a curriculum in dental colleges calculated to teach dietetics to dental students, since this would foreshadow a tendency of encroachment on their accepted province, but if we are truly awake to the purpose of our calling, a criticism of this character will not dampen our ardor to reach out and take possession of such arts or science as will give promise of firm foundation or better superstructure. The profession in the past has made similar advances and met like rebuffs, and in consequence donated features to both surgery and medicine meriting the praise of those who first opposed and oppressed departure.

No better example can be cited than when Dr. Horace Wells, a dentist, discovered the sleep-producing qualities of nitrous oxide, the medical fraternity unanimously decried the practice of allowing dentists to administer any of the anæsthetics, and the same antagonism was abroad when Dr. Norman Kingsley devoted his energies in the fields of oral surgery, in his eager ambition to treat the physical disturbances known as cleft of palate.

Our profession did not yield to the sharp and oft vitriolic criticism of the mother calling, but, steadfast and determined that these treatments and operations belonged to the province of dental surgery, the high ground of progress was reached, and now none feel more elated or uphold our standard better than Mother Medicine. The same will be true of the subject of diet, since we can readily convince all that as guardians of Solomon, "Milestones of Life," we are intensely concerned in the disposition of our patients and especially interested in the foods they accept. This theme belongs to us, we must not flinch or retreat; we have the legal right since it is integral ground, and this pioneer task we can accomplish —and if we are branded as usurpers, let us remember that usurpation of power is no greater a crime than neglect of duty.

PRESIDENT'S ADDRESS.*

By F. T. Bell, D.D.S., Aurora, Ill.

Gentlemen of the Northern Illinois Dental Society:

In coming before you on this, the occasion of our sixteenth annual meeting, I wish to express my appreciation of the honor which I feel it to be of addressing this body of representative dentists as its president; to thank you for the kindness extended to me during my term of office; to assure you of the pleasure I have taken in the society and the great benefits which I have derived from meeting its members year after year.

Our convening is not merely for the exchange of the latest opinions or the acquisition of new methods of work, for you are all readers of dental literature and familiar with the important points brought out or emphasized during the year. Yet in our eagerness for material benefit we do, in a large measure, overlook, I think, the spiritual interchange which takes place at this time between man and man, and which is too subtile for the written page to convey.

The master of modern philosophy calls attention to this fact, that what has come down to us concerning lives of great men is inadequate to explain the immense influence which they wielded during life; that the exploits of heroes are not commensurate with the fame they enjoyed and the records they left behind them. "This," he says, "is what we call character—a reserve force which acts directly and without means."

This direct action of mind upon mind is appreciable in all great bodies of men and women who gather to represent almost every profession, trade or condition of life, whether they be for good or evil. The minister comes away from assembly or conference uplifted in spirit. The anarchist, inflamed by contact with the passionate souls of his fellows, is roused to demoniacal fury.

It is not confined to the human race. The same force suddenly stampedes the cattle on the plains.

Therefore, the presence of a man in a concourse who has his spiritual nature attuned to that which is best, serves to elevate the whole body. No man should go away from one of our meetings without receiving inspiration from the contact with his professional brothers. If he does, let him search himself to see if the fault does not lie within. Has he too little of the spirit of receptivity? Has he come with the purely selfish motive of getting all and giving nothing in return?

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*Read before the Northern Illinois Dental Society, October, 1903.

Let us give as freely as we receive. No matter how incapable a man may feel of imparting aid to another, if he but remember that a cheerful, helpful spirit serves, he may uplift someone who has come to the meeting worn out with his year's work or discouraged by the prospects before him.

The interest in the society should be deep enough among the members themselves to induce them to try to persuade others who are not attendants upon any dental society to be present at ours. Certainly the spirit pervading our meetings will lead such to have a deeper regard for and a better understanding of dental ethics, and not only will the society, but the profession, be enriched to that extent. The indifference of others to that which is highest and best should only make us the more eager to bring them under such influences.

In order to interest new members and hold the attention of the old, the meetings must be made as profitable as possible. Perhaps the most tangible aid toward this end is a prompt reply to the officers who have charge of the program. If it must be a negative answer then send some suggestion—it may come as a ray of light to a perplexed committee man.

As contributing to the success of future meetings, I would suggest that as the time for one approaches, you write to the chairman of the program committee, mentioning some line of work you would like to have taken up. No matter how well equipped the chairman may be for his work, he cannot fail to overlook something which would be of benefit. He will gladly welcome such aids and a greater interest will be manifest in meetings where a larger number participate.

Each year sees a decrease in the spirit of commercialism in dentistry. I doubt if there are many, if any, men who are members of a dental society for the gain in dollars and cents which it may bring them. We may safely say the progress made in the profession has been effected by those who have sought the heights that they might better serve humanity. The better prepared the dentist is himself, the better fitted he is to educate his community to an appreciation of the importance of his profession.

Medical recognition is yet greatly coveted by some of our number. In so far as the dentist and the physician derive mutual benefit, such recognition is desirable. But why should not dentistry stand alone upon its own merits? Is medical recognition necessary to place it on a higher plane? Physicians are too progressive a body of men not to take advantage of the opinion and service of the dentist in the many cases in which these will be of assistance to them, and I never see in a medical journal—or in literary or religious magazines—anything derogatory to our profession. Attacks usually come from within and are a confession of weakness on the part of those who make them.

Let us be content to follow our calling, seeking to give it the best of which we are capable; doing right only for the love of the right.

Quoting again from Emerson: "Rectitude is a perpetual victory, celebrated not by cries of joy, but by serenity, which is joy fixed or habitual."

Can we not as a whole, as well as individually, "stand for a fact," and knowing that our aim is only at that which is loftiest, live for truth—not recognition?

Yet the latest turn of the wheel would seem to indicate that the trend of events is toward making the last first. Within the past year there has been opened up a new field for the consideration of the dentist.

I think I have said before that we should be careful about adopting unproven theories. In presenting this one, therefore, I do it with the wish and hope that you will give it the most thorough and searching investigation, for upon it depend, if anything, great issues.

It may be that this society will have the honor of being the cradle of a measure destined to influence our civilization; reverse, in a measure, our laws of property and effect changes whose extent no one may now predict.

I refer to a bill now being pressed, whereby it shall be lawful for the dentist to determine the ages of children by their dentition.

This bill was prepared by one of our foremost charity workers, who craves your opinion of it. If there be a grain of truth in it, preserve it, but do not fail to give the matter your attention; let us discuss it fully and freely.

A BILL

"For an Act to ascertain the age of children of the age of sixteen years or under and fourteen years and over.

"Section 1. Be it enacted by the people of the State of Illinois, represented in the General Assembly: It shall be lawful for any duly authorized dentist who is licensed to practice dental surgery in this State to issue a certificate of age for children of the age of sixteen years and under and of the age of fourteen years and over, which certificate shall set out the progress of dentition of such child, and shall state, in addition thereto, his opinion, from the best of his knowledge and belief, from general appearances, what the probable age of such child is.

"This certificate shall be made under affidavit and shall be accepted as sufficient proof of age in all cases where the age of such person is required in law."

The physician cannot always swear that the child whose parents have put it to work is the one at whose birth he was present fourteen years before. Records of birth in this country, and more especially in other countries, cannot always be verified, and Boards of Education may also be deceived as to a child's age.* Hence the questions arise: Must or can dentition determine children's ages when other methods fail? Can it say with reasonable certainty when the child is of an age when he may be legally removed from school, or employed in factory or office? Will the fact that his dentition is more or less developed than his years warrant be proof that he is mentally and physically developed in proportion? And shall the child be put at labor or removed from school or become of age in the sight of the law hereafter, not according to his years, but according to his dentition?

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*Jane Addams, of Hull house, in discussing the provisions of the law requiring principals of schools to issue age and educational certificates to children desiring to leave school to go to work, said: "Much depends upon the intelligent and sympathetic co-operation of the principals in making the enforcement of the child labor law a success. Parents are already giving the age of their children as six when they are really four, in order to evade the law and permit them to leave school when they are fourteen. Demand birth certificates if you are in doubt, and do not let parents impose upon you regarding the age of their children. If a foreign born child does not learn to read and write before he is sixteen, the chances are that he never will. When parents of foreign born children are convinced that their children will not be permitted to work for wages until they are able to read and write they will see to it that they master these rudiments of education at the earliest possible moment."

Here, as has been said by another, the more exact science of dentistry is called into action, rather than that of medicine. Considering the immense field which our profession seems destined to cover, I expect some day, when time shall justify it, to see her the happy consort of medicine, and it would not surprise me to hear her, as did a member of a certain woman's club when called upon unexpectedly for a response to the question "What shall we do with our husbands?" exclaim, "Why, make them our equals, of course!"

PROCEEDINGS OF SOCIETIES.

INTERNATIONAL DENTAL FEDERATION.

Extract of the Proceedings of the Executive Council of the F. D. I., Madrid, Spain, April, 1903.

The Executive Council after considering:

1. The statement addressed to the President and General Secretary of the Executive Council, on December 5, 1902, by Mr. Patterson, Secretary of the F. D. I. Committee, and Mr. E. C. Kirk, Secretary of the Committee appointed by the National Dental Association.

2. The official letter addressed to the F. D. I. by the President of the Exposition of Saint Louis (Missouri), Mr. David Francis, and the Director of Congresses, Mr. Howard J. Rogers, on April 1, 1903.

3. The statement of the Committee of Nine Members, appointed by the Executive Council of the F. D. I. in Stockholm (Committee of the F. D. I.), presented on April 23, 1903.

4. The Report of the General Secretary to the Executive Council.

5. Several letters exchanged between representative members of the Federation and different groups or Committees interested.

After hearing the representatives:

1. Of the N. D. A. of the United States of America, Drs. Cryer and Brown.

2. Of the Director of Congresses of the Exposition of Saint Louis, Dr. Brown.

3. Of the Committee of the F. D. I.: Dr. Brophy.

After deliberations during the meetings held from April 21st to April 28th, 1903, adopts the following resolutions:

Art. 1.—The Committee of the F. D. I. should be represented equally with that which represents the purely national element in the Committee appointed for providing the ways and means of holding the Fourth International Dental Congress, electing the officers, preparing the scientific program, and such other committees as may be found to be necessary in order to represent fully the interests of the members of the dental profession in all countries.

Art. 2.—The Committee of the F D. I. is authorized to increase the number of its members so as to always have an equal representation with the Committee appointed by the N. D. A.

Art. 3.—If the conditions mentioned in the above resolution (conditions which have for an aim that the Saint Louis Congress in 1904 will be really the Fourth International Dental Congress) are not accepted or executed, the Bureau of the Executive Council, being so informed, will have the right to withdraw its acceptation of the invitation which was addressed to it and to decide that the St. Louis Congress, 1904, shall not be called the Fourth International Dental Congress.

Art. 4.—Gives full power to the Bureau of the F. D. I. to settle any dissensions which may arise during the interval of the two sessions of the F. D. I., relative to that Congress.

Art. 5.—Drs. Cryer and Brown, regularly accredited to the F. D. I. as delegates by the N. D. A. through its president, are requested to transmit the above resolutions to President Noel, also to Dr. Burkhart, chairman of the committee appointed by the N. D. A.

Art. 6.—Dr. Brown, duly accredited to the F. D. I., as delegate by the Director of Congresses of the Louisiana Purchase Exposition, is requested to transmit to him the above resolutions.

Art. 7.—Dr. Brophy, chairman of the committee of the F. D. I., which committee is confirmed in its powers as representatives of the Executive Council of the F. D. I. for the Fourth International Dental Congress, is charged to transmit the above resolutions to the authorities of the Exposition, Mr. David Francis and Mr. Howard J. Rogers, in response to their aforementioned letter, and to come to an understanding with them regarding the above resolutions.

Art. 8.—The original of the present document is written in French.

Le Secrétaire Général,
DR. SAUVEZ.

OPENING SESSION OF THE I. F. D. AT MADRID—ADDRESS OF MR. FORBERG.

MR. MINISTER, LADIES AND GENTLEMEN—In the interest of the Government of Sweden, of the Society of Swedish dentists and of the Swedish National Committee, I have the honor to present to the International Dental Federation a most respectful greeting.

We had the pleasure, last year, to receive as guests at Stockholm the numerous members of the Federation who were kind enough to honor us by accepting our humble invitation.

To-day, I am happy to be able to greet the Federation in this beautiful capital of Spain, so rich in memory, for I have always admired this noble and chivalrous Spanish nation, whose miraculous history, like the tales of "The Thousand and One Nights," does not fail to fascinate.

The fact of seeing the Federation assembling at the various parts of Europe, sometimes in a corner of the North as far away as Stockholm, sometimes as far to the South as here in Madrid, proves to us perhaps better than anything else its true international character.

The fact that members of the Federation, scattered over not only the different points of entire Europe, but also America and even Australia, never hesitate to hearken to the first call to reassemble, proves to us also with what esteem and devotion they all interest themselves in their efforts to develop the future prospects of this noble institution.

It is therefore with sincere pleasure and with the greatest confidence in the future, which opens so full of hope for this Federation, that I come here as a representative of the Government of Sweden and of my fellow countrymen, to wish it happiness and prosperity, not only here, in Madrid, but everywhere, for I am convinced that its useful and assiduous labor will ere long be beneficial to the universal science of odontology and to the entire human race.

ADDRESS OF MR. SMITH HOUSKEN, OF CHRISTIANIA (NORWAY).

GENTLEMEN—When one spends his life beyond the seas, in the country of the midnight sun, amidst snows and ice, in the cold and wind, it is delightful to the eyes and to the mind to come to a country full of charms and intelligence. This country, Spain, our childhood and our youth have taken pleasure in picturing as the birth-place and abode of a chivalrous people, great in history, great in power, both on land and sea.

Therefore it is with the greatest pleasure that I accomplish the mission of bringing a cordial greeting from the Society of Norwegian Dentists to their Spanish colleagues and to the I. D. F., who meet this year in the beautiful capital of Spain.

I hasten to take advantage of this opportunity to express our sincere thanks for all that the Federation has done during so short an existance, as much for the remarkable manner in which it has organized the groups of fellow members from all countries in a common cause as for the brilliant results of the congresses from Cambridge to Stockholm.

Finally, I venture to predict that this assembly, itself, will also accomplish important results, and that it is with the greatest interest that these achievements will be welcomed by our colleagues throughout the entire world.

ADDRESS OF PROFESSOR PIERRE MICHEL GIURIA, OF GENOA (ITALY).

YOUR EXCELLENCY, LADIES AND GENTLEMEN—In this solemn inauguration I am happy to bring to the courteous and hospitable Spanish dentists salutations and good wishes from their Italian fellow members.

The proficiency realized by medicine in recent times has divided into two camps those who make the art of dentistry a profession; in the first camp are drawn up the modern and the future dentists, that is to say, medical dentists, who are in a position the better to pursue scientific discoveries and the practice of medicine and surgery, having the most acquaintance with special odontology; in the second camp are deployed the old-time dentists and all those who maintain that the doctorate degree in medicine and in surgery is not necessary for the dentist and even constitutes an obstacle for him.

It is in order to find the means of conciliating these two tendencies that we have met here to-day, and I am hopeful that the Federation will succeed in working out a program which will be in harmony with the ideas of the first camp, without injury to the susceptibilities of the second.

ADDRESS OF PROFESSOR MILLER, OF BERLIN.

YOUR EXCELLENCY, AND MUCH HONORED FELLOW-MEMBERS—As a delegate of the Central Society of German Dentists I address you with wishes of success.

Dentistry has made considerable progress in Germany in the last few years, and, even at this moment, we are celebrating a great triumph, which consists in that, from this day forward, as a recompense for our continuous efforts during these years, fitness will be required as a preliminary condition in the studies of dentistry.

The German surgeon-dentists give all their attention to foreign or national works which have for their object the upholding of the interests of our profession.

That is the reason that we have welcomed with pleasure the formation of the International Dental Federation, and we cherish the resolute hope that its efforts will contribute in a notable manner to develop to a greater degree the art of dentistry throughout the entire world.

THE ADDRESS OF MR. ALLENDE SALAZAR, MINISTER OF PUBLIC INSTRUCTION OF SPAIN.

I accept, gentlemen, the marks of sympathy, that you have given to the representative of the government when he arose, and

I accept this proof of union, of attachment, that is manifested in your discourses and which I shall address in my turn to the representatives of the governments and societies that compose this important Federation. This Federation is young, you say, because it has come into existence but a short time ago; but, from its conditions and exceptional importance, it appears rather advanced in age, because it believes that the best means of arriving at practical results is by instructing and preparing dentists of the future in all respects to realize its meaning with a unity of judgment and a perfect knowledge of the question. It is the only way to succeed in accomplishing the good that the Federation proposes in the interest of humanity and science.

I welcome, therefore, in the name of the Spanish Government and in the name of the King all the representatives who honor us with their visit, in expressing the wish that not only will they meet here with the means of progress they are in pursuit of in all that concerns the dental profession, but still more that they will carry away with them pleasant recollections of their sojourn in our midst.

It is not possible for me to recapitulate all that has been said of importance here. The interest that is presented for the government, for the nation and, still more, for humanity, the labor and the work of the Federation cannot be told, because this interest finds itself enlarged to its limit from the moment you have made known your aspirations in public hygiene and for humanity in matters of instruction. This breadth of view will be the cause of triumph for the Federation and of the coming, from to-morrow, of the day when the program that the President of the Federation announces to us will come into effect.

These aspirations have the features of a program unique and general, with a common sense understanding in regard to methods, without distinction of nationality or language, seeing that, as the Swedish representative has said, science has no confines and has no other objective than the great aim of humanity.

Concerning the question of instruction, I, who am of the laity on the subject, should not enter into anything that has reference to technics; but I have read your works, I have followed your opinions and I have remarked the great practical sense and the knowledge of the reality that characterizes you, when you determine upon what the preparatory studies are for the profession of dentistry, the studies for improvement, the distinctions between art and science, studies which, from now on, place the young Federation at a great height and put it in a condition where its deliberations have "an official character," and may it be aided by the several commonwealths joining in its labors.

The change from old-time ways of mankind to modern ways, as the representative of Italy has told us, is being accomplished. As far as the Federation is concerned it should be accomplished rapidly, according to my idea, from the international relations which will serve without the least doubt to efface the recollections of the past and to open a new era for the future, with the concurrence of all thereto.

I return thanks to representatives of all countries for the friendly expressions, so full of courtesy and of sympathy, we have heard, some of which were so warm that they caused my heart to throb with emotion, and in the name of the highest institution of the government and of the country, and in the name of the King, I declare the session of the Federation which is being held at Madrid officially open, and from it we may expect with certainty great benefit in the advancement of pure science and the good of humanity.

I thank you. (Great applause.)

AN ADDRESS DELIVERED BY DR. ROY, AT THE OPENING SESSION OF THE F. D. I.

When in 1900, at the end of the Paris Congress, the latter in its closing session voted for the formation of the F. D. I., some doubts might have been expressed owing to the difficulties ot the task undertaken, on the vitality of this international organization and on the results it was able to obtain.

To-day, as this Federation records three years of existence, as the numbers of adherent societies and delegates increase constantly, the doubts respecting its vitality, if any existed at the outset, should be completely dispelled.

In regard to the importance of the results obtained, the statements given at the two preceding sessions at London, Cambridge, and at Stockholm, are at hand to bear testimony of it.

To-day the third session of the International Dental Federation opens. We are certain that this meeting will equal its predecessors in interest and will bring to the future of our profession, to our schools, to public hygiene, all the benefits that we have a right to expect of an association founded upon the broadest of views, international solidity and universal progress.

We are happy to hold the present session in Spain, this beautiful country with such a diversity of aspects, of which every bit of territory evokes such glorious recollections and adds a further charm to the international interest of our art which draws us here.

I am authorized by the French delegation and by the Paris School of Dentistry to present in this first session my wishes of prosperity for the International Dental Federation. I am happy in bringing to it the testimony of our sympathy and to thank the city of Madrid for the generous hospitality extended to the session, and the Spanish Government, who, in the person of its Minister of Public Instruction, has done us the great honor to bestow on us its powerful support.

To all of you, my dear Spanish fellow members, to you, also, my dear foreign fellow members, how happy we are in meeting here, my humble voice tells you, following an old saying dear to the hearts of Frenchmen, "Health and Fraternity."

THE ADDRESS OF DR. AGUILAR, OF MADRID.

GENTLEMEN—I regret beyond measure that a large delegation of people who were coming to take part in our discussions has not been able to do so because a difficulty at the frontier compelled it to postpone its arrival till 10 o'clock in the morning. This incident deprives us of the presence of some whose speeches we should hear.

It is not my place, gentlemen, to welcome so many persons from abroad; that is the sphere of the Minster of Public Instruction, who does us the honor to preside at this session this morning, to do so with the authority with which he is invested by his instruction and with his habitual eloquence.

I have only to address an appeal to my Spanish fellow members, who honored me as a delegate to Stockholm, and ask them to remember that there are among us men who, not only from their personality, but from the representation with which they are charged, are worthy of the greatest consideration.

Let us not forget, gentlemen, that the reunions which we have to hold are not those of a mere society, but those of a Federation, of an assemblage of persons who have undertaken to represent numerous societies and whose discussions should be of great importance and great impressiveness.

Let us bear in mind that we came here to present memorials in order to have them debated on, that we came here to discuss the same subject on which all should give their views and the results of their studies, in the direction of a sole object which should influence the method of procedure, and the organization of instruction all over the world, as well as the progress of the profession in the future.

In respect to those from abroad, I speak to them all in the language of my country, to tell them that they will find in Spain the hospitality they deserve, and to which we are bound in regard to all those who have come from various countries to seek in Madrid a neutral ground for their discussions and honor us with a visit which we appreciate from the depths of our hearts.

(Prolonged applause.)

PROCEEDINGS OF THE TWENTIETH ANNUAL MEETING OF THE MINNESOTA STATE DENTAL ASSOCIATION, MINNEAPOLIS, MINN., SEPT. 1-2-3, 1903.

DISCUSSION OF THE PRESIDENT'S ADDRESS.

Dr. H. M. Reid:

I did not hear much of the president's address except that part referring to reciprocity. It is a matter that should be adjusted in some way. It seems to me, in looking back over the workings of the educational institutions, as if this was something for them to accomplish. I understand that under the by-laws governing the National Association of Dental Faculties there is no college in any state recognized that does not have the recommendation of two other colleges, members of the association. They also in their meetings, I understand, take up this matter of education and advancement, and it does look to me that members of that association, or the alumni of those colleges, if they show they have passed the boards of their own states, should have the privilege of practicing in every state in the Union. If they do not have that privilege, what does that association amount to? If a college cannot become a member of that association after it is thoroughly investigated and is found unqualified, the alumni of that college should be shut out of every state. I cannot suggest just what should be done, but it appears to me this matter of reciprocity should be taken up and worked out to some definite and satisfactory conclusion. As Dr. Owre has said, the standards of some states are so low that a license is not worth anything, but yet their colleges are members of this association. It seems to me that only those colleges should become members, who have the highest standard of education, and their alumni should be allowed to practice in other states. There is something radically wrong somewhere. I think it might be a good idea to appoint a committee to see what can be done toward putting this matter in better shape.

Dr. Eugene S. Talbot (Chicago):

I do not know that I can add anything to what has been said in regard to reciprocity. I am in favor of it. Not so much on account of the young man just graduating, but also for the sake of the old practitioner who has lost his health in his home state and finds it necessary to emigrate to another. I do not think there is a gentleman in this room who is not familiar with some instance of this kind. Such men cannot practice their profession under the present laws in the state to which they must remove. The dental profession should make some provision whereby it is possible for a man, old or young, who has successfully practiced in one to continue practice in another state.

I was very much impressed with what was said in regard to organization. I could see as the essayist read his address that he had been looking into the future and had read up on the subject of organization in other states and in other professional bodies. It is a fact that the British Medical Society and the American Association have organized on that plan, and there is no other by which the dental profession of Minnesota can be brought together in state organization. The plan has been tried for some years in large organizations and has proven a success. In the United States there are about 120,000 practitioners of medicine. There was a membership of about 4,000 in the American Medical Association, if I recall the figures correctly, ten or twelve years ago. There was a subscription list to the American Medical Journal of about 5,000. To-day the list is about 24,000. The American Medical Association adopted the plan similar to that of the British Medical Association and has organized in the United States in the manner suggested by the essayist. The national or state association cannot obtain a membership without the state or United States is divided into districts or sections and each one of those sections or counties worked. The county society, as called in the medical profession, is the working body, and the man who joins the county society is a member of the state society. If he be a member of the county society where he is known, he can become a member of the state society, accordingly a member of the national body. The man who joins his county or district society should pay five dollars into that body. That body pays pro rata (according to the arrangements) into the state society, and the state society pays pro rata into the national association. That is going a little furher than was suggested by the essayist. The American Medical Association is now organized on this plan. The idea is to get into the national association at least 70,000 members. The state societies all over the country have organized on that plan. There is one plan for every state and county society. Local conditions must always be considered, but the general plan of organization is the same. The state could be divided into sections. Local dentists could organize local societies. These become feeders for the state society. Such an organization is an ideal body. Other organization methods have been tried in this country and in Europe, but this method has proven to be a success. It is only a matter of enthusiasm on the part of the local dentists in a county or district to make the state organization a great and influential body.

To go further—there should be a journal of the Minnesota State Dental Association under the jurisdiction of the state association, so that the younger members and those living in remote parts of the state could contribute. If this plan be adopted a charge must be made for the journal. I believe by following the plan outlined you may be able to have a grand state organization.

Dr. E. C. French (Eau Claire, Wis.):

The president's paper is certainly very interesting and instructive, and he has given us food for thought that will last us for years, and then we will not have it all assimilated. The subject of societies is one that has a history. In some states the history is so good (like this state, for instance) that the members can feel proud of it; while in other states it is just the contrary. While listening to this discussion my mind has been running back over a period of thirty years gathering up a little of the experience I have had in societies in our own state and in some other states, and the picture does not look exactly right as I see it. For instance, I think it was in 1868 or 1869 that I became a member of the Iowa State Dental Society. They were an enthusiastic society, and the next society I joined was in the state of Wisconsin. Looking back twenty-five years I see that nearly all of the men that were in the organization when I joined are out now. There are only two or three who were active members of the society at that time who are in the state society of Wisconsin to-day, for some reason or other, and I do not undertand it. Speaking of our local organizations, they have a tendency to keep a good many members of the local organization away from the meetings of the state society. Take for instance the Southern Wisconsin Dental Society; I do not believe there were three men from that society present at the state meeting. While we have a good program, get the best men from Chicago and have good papers, the members say they cannot afford to go to the state society meetings. We have to recognize this thing in our societies, that we must draw on every man and make him feel that he is responsible for something in the profession. I would like to see a law passed that if a man did not join the state society he could not practice in the state, then we would get them all in and have a good society. (Laughter.) But we cannot do that. When we impress upon the mind of every man entering the profession that he has some responsible place in the profession, that he owes something to his neighbor as well as to himself, then we will get our societies built up. You will find men in every place in the United States that are doing active work for their societies. This work should not fall on one or two men, but every dentist should feel that he has something to do, if it is only sending in his dues to the society. If our journals would take up this subject, and have in every issue something pertinent to this question, until every man who reads a dental journal would feel that he has something to do, that he has something to say, and that a responsibility was resting upon him, then we would see our societies built up.

Regarding this matter of reciprocity, I have advocated it for twenty years. If I am qualified to practice dentistry in the state of Wisconsin I am qualified to practice in Minnesota. I am free to say I could not pass the board in Minnesota in spite of my best endeavors on account of the technicalities. There is too much responsibility placed in the hands of the state board. I have been a member of the state board for several years myself. I think every man on the board is honest, but his ideals are so high that not every practitioner can reach that ideal, consequently he is shut out. I have to stay in Wisconsin to practice. I do not know that I would leave anyway, because I do not have money enough to get away, but I would like to see this reciprocity question agitated until we get interstate recognition. But the powers above us, the National Association of Dental Colleges, have the matter in their hands to do as they please. I know of one dental college, a good one, too, two or three of whose graduates I know personally and who are an honor to the profession, but that school was not eligible to the association of dental colleges in the United States until a year ago, simply because they charged only $75 instead of $100. The curriculum of that college was exactly the same as the colleges in the association. The association says get into the union or you cannot lay brick.

I think the sentiment of this paper is of interest to every dentist in the state of Minnesota, and we ought to keep up this agitation until we get a law that recognizes a license from the state of Minnesota good in the state of New York or any other state. I know an instance of a man who was a leading dentist in his state, a D. D. S., who could not get a license to practice in New York simply because he could not show a high school certificate or diploma from a college. That is not right.

Dr. C. H. Robinson:

Just a word in regard to the President's address. I was much pleased with it, and I believe the President is working along the proper line. In regard to dividing the state into districts, it appears to me to be a good movement. I must disagree with some of the speakers who said that local societies interfered with the state society. Where you have a good worker in a local society you will have a good worker in the state society, and a man who is of little use in his local society is of but little use in the state society. This idea of having a law to compel a man to do something for the profession will not work. You might force him to pay his money, but that is all you could do. As to the work, that must come spontaneously; you must make a man see that it will be to his own interest to work, you must appeal to his selfish interest. In regard to dividing the state congressionally or into forty-mile arbitrary limits, I believe a careful study of the state, taking the communities naturally tributary to each other, along the lines of travel, or the lines of natural trade tendency, would be better than running an arbitrary line on the map with a ruler.

In regard to the matter of reciprocity, this appeals to me more strongly than any other point in the address, as I am a member of the examining board myself. I am only sorry that more members of the state board are not present to get the sentiment of the society on this question. This is a subject that comes up every year at the national association meeting. It is a big question, and a question that must be looked at from all points of view. The idea of reciprocity appeals to every man. There are many men, not capable of doing good work, who would go from one state to another, and it is a fact that more or less of our colleges turn out men who ought not to be graduated. There must be some limit placed. The question is where to draw the line. I would be very glad to see resolutions prepared suggesting some movement along this line.

Dr. S. R. Holden (Essayist):

I have nothing to say or to suggest except to express myself as pleased to see that we are all interested in these questions of reorganization and reciprocity. Dr. Owre stated that the condition hoped for is ideal, but I know it can be accomplished.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held in the Stratford Hotel, April 14, 1903, with the Vice-President, Dr. Elliott R. Carpenter, in the Chair.

Dr. Calvin S. Case read a paper entitled "A Permanent Retaining Fixture and When Demanded."

DISCUSSION.

Dr. C. N. Johnson:

I cannot throw any light on the subject, but will not let it pass without an expression of appreciation. Dr. Case always has something new and practical, something we can use in our offices. I was interested because I have one such case under treatment now, a case of irregularity, although of a slightly different character, which I think is partly due to pyorrhea. I am moving the teeth into position, treating the gums at the same time, and I am delighted to have so practical and efficient a method as this brought to our attention, because it will be of great advantage to me, as well as my patients.

Dr. J. H. Woolley:

The paper was particularly interesting to me, because I have a case in hand now that will soon be ready for the staple. I do not know that I have ever seen anything of this kind before. The young man split his jaw between the anterior teeth. I had an X-ray taken to show the condition. After four or five months I commenced to bring his teeth together, lessening the expansion of the arch. The teeth to the right of the right central were driven up, and it was surprising to me that there was not some need for treating the teeth, but they were intact. I would like to ask Dr. Case whether he has ever seen a case in which the teeth were driven up and still retain their vitality.

Dr. Case:

Yes, sir.

Dr. A. H. Peck:

I have had some experience with this form of irregularity in a number of cases, and have found that those caused by pyorrhea and by malocclusion give the most trouble to retain them after they have been placed in proper position, especially the central incisors. In some cases I have used bands and cemented them; the longest period of time of retention was nearly three years. This was a case of malocclusion. I got the teeth in place, but when I removed the bands, they shifted back into their original position. I think Dr. Case's appliance is an excellent one, and I was glad to hear his remarks on the subject.

Dr. J. E. Hinkins:

I enjoyed the paper very much, but this staple idea is not new to me. About twelve years ago a lady came to my office whose central incisors gapped, and she had just such a staple on her teeth as Dr. Case describes. Dr. Dayan was the man who inserted it. I have used the staple ever since, and want to thank Dr. Dayan for the idea.

Dr. E. A. Royce:

I was delighted with the paper, because it deals with a very perplexing condition, and it will assist us in doing what many of us have not succeeded in bringing into practice.

Dr. J. G. Reid:

It occurs to me that the boring of this hole is an exceedingly delicate operation, and we are not always sure of how much tooth material we have in the majority of cases that come under our observation. There are many cases of this peculiar irregularity where the patients do not come to us for correction, because we see many people every day who have these gaping centrals. It seems to me, looking at it from a practical standpoint, that the same object could be gained by boring a hole of a lesser depth than is seen in the specimen passed around. I have not had any experience with this work, and simply surmise. Of course, Dr. Case is skillful, and has an eye which is educated for this work, but that is not true of the ordinary dentist. Many of us would be approaching the pulp chamber before we would be aware of it. That is not a criticism of the method, because I believe it is applicable, and, well applied, will do the work. It is probable, however, that the average dentist would bore into the pulp chamber more times than he would keep away from it. The appliance is unique, and I am surprised that some of us have not thought of it before.

Dr. Louis F. Dayan:

My idea in making that staple was to put in something that would take up as little room as possible. It has been about fifteen years since I first used it, and have had occasion to use it many times since. For a permanent appliance I would use backing. I take an impression of the teeth, make a die and counter and swage the backings. A thread can be cut on the ends of the wire staple that pass through and are soldered to the backings. The thread aids in holding the appliance more firmly in cement. The Carmichael process is too bulky. You cannot get the apparatus out of the way as you can the staple.

Dr. Reid:

Would there be any objection to devitalizing the teeth first?

Dr. Dayan:

None, if necessity calls for it, but it was not necessary in this case.

Dr. Elliott R. Carpenter:

There are a number of things Dr. Case has brought out that have been instructive and of interest. They suggested several cases that have come to me in the last four or five years for the treatment of loose pyorrhea teeth. About four years ago someone suggested to me the feasibility of anchoring two teeth together, and I would like to mention two cases in which I tried it. The first case came to me about three years ago, a gentleman with a severe case of pyorrhea. Some dentist had advocated the extraction of all the teeth. I looked the case over thoroughly, and as he was willing to spend the time to save his teeth for a few years, I tried the anchoring process. I cleaned all the teeth carefully. The lateral was solid; the central was loose. The bite was such that it seemed impossible to get a retaining appliance on without having it conspicuous. The distal and mesial ridges were very well defined, so I drilled through these from the lateral to the central, enlarged the hole a little, cutting down into the body of the tooth itself. I made a bar of platinum in the shape of a boomerang, and fitted it carefully and accurately. I put on the rubber dam, and ligated the central solidly to the adjoining teeth, and set the boomerang (which had been notched in all directions with a little sharp instrument) in cement, with a little cavity beneath to help hold. That appliance has been on about three years and is still solid. The man was considerably over fifty. My observation has been that cements in the mouths of people past middle life are inclined to stay much longer than in the case of younger persons.

The second case had pyorrhea of the lower central incisors, with the teeth prominent because of a short lower lip. A fellow practitioner told me to cut a groove through the middle two-thirds of the two lower incisors, about one-sixteenth of an inch deep, and fit a thin piece of platinum in the groove, then cementing it in place. I did that in one case, but the teeth were so thin that I was obliged to use very thin platinum, so that there was ultimately a buckle in it. I had a similar case a short time ago, in which I took a thin piece of platinum, slipped it into the groove, then put in another piece, cut them both down to the proper width, sweated them together with platinum solder, making it as stiff as a piece of piano wire. I cemented the whole into place, and I believe it will hold those teeth firm for many years.

Dr. Louis F. Dayan:

I have a case in mind in which the upper right central incisor had lengthened one-eighth of an inch. I forced the tooth back into the socket, and then anchored it to the teeth on either side. I fastened all three together on the staple principle, using a small backing on each of the three teeth. About a twenty-gauge wire, threaded, was put through each backing, and the whole soldered together and cemented into place. This was done about four years ago, and the tooth is still in position and very solid.

Dr. W. H. Taggart:

The discussion has brought out several things. What has impressed me most is the line of thought presented by Dr. Reid. Dr. Case makes such an excellent point that I think it would be best to combat Dr. Reid's idea, as the timid man might be scared and fail to use this appliance when it is indicated. I do not think that there is so much danger of going into the pulp. The fear that we are approaching the pulp when we get into the sensitive part of the tooth would keep a man from drilling as he should. I would like to go on record as combating Dr. Reid's motion in that regard. This appliance should be used by every dentist, and because a man is timid he is not necessarily incompetent. He should be encouraged to use these methods, in order to obtain the benefit associated with them.

Dr. J. H. Woolley:

The gravity of the situation demands heroic measures. Suppose that this does destroy the pulp! Better destroy the pulp and fill the canal and be sure that you have anchored those teeth properly, so that they will be retained in position, than to have the patient lose his teeth.

Dr. Case (closing the discussion):

Several years ago, when I first used this staple, I made linguo-labial sections of a number of teeth, and notwithstanding the fact that I had previously supposed I was thoroughly familiar with the anatomical structure of teeth, I soon found that I was mistaken. In nearly all of the cases, the greatest cervico-radial distances from the canal to the periphery were on the lingual side. If Dr. Reid will take this tooth again and look at it root-wise, he will find that the curve in the drawing is not any more apparent than in any ordinary tooth. In looking at teeth, with the view of determining the direction of the central axis, we are very much inclined to think that the end of the root is considerably in front of its real position and would therefore be liable to bore the pit toward the pulp of the tooth instead of back from it. So that in looking root-wise at an upper incisor with the eye placed in such a position that the cutting edge will come between the gingivo-labial and lingual points, we are surprised to see that the line inclines so far towards the lingual direction. If we bore without thought, we will bore toward the pulp.

When I began this work, I used a staple having the ends curved in toward the tooth. I first put in one end, and then by force I sprung the other end into place. I do not believe that the staple ought to have any plate or extension out on the enamel surface, as the movements of the teeth and their relation to the appliance would soon tend to break the cement attachment, and it would then serve as a lodgment for food, which is really a great danger in any appliance attached to a tooth. It is far safer to have the enamel surface around the hole kept as perfect as possible. It might even be desirable to countersink the borders and carefully fit the appliance at these points. It would last longer, and not afford a lodgment for food, which would produce decay in places where it could not be seen.

There is no reason why the appliance should not be removed at any time, and be replaced or cemented again. If dentists will follow the directions I have given in regard to boring the hole, they will run no risk of entering the pulp chamber, or of perforating the roots of the teeth. I see no special need of threading the wire. The only object I would have in even roughening the ends would be to prevent the possible rotation of the tooth. If the holes are bored to a depth of about two and a half millimeters, which can be done with perfect safety, and the borders are then not covered with a plate extension as suggested by Dr. Dayan, the operation will give the greatest satisfaction.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held April 20, 1903, with the Vice-President, Dr. J. P. Buckley, in the Chair.

Dr. B. J. Cigrand read a paper entitled "Diet, Dentures and Disposition," which was illustrated by stereopticon slides.

DISCUSSION.

Dr. T. E. Powell:

I have not for a long time listened to a paper of more interest than the one given us to-night by Dr. Cigrand.

Who but he could give us a scientific treatise on dentures and diet, and combine with it an international art gallery, or a Chicago Opera House kinetoscope? I do not know which I enjoyed the most, the points which Dr. Cigrand brought out in his paper, or the pictures which were presented before me. I am afraid the pictures I saw will not help me to connect my thoughts to give you an intelligent discussion, because I freqently lost what the Doctor was saying while gazing with admiration on the pictures. But I had the pleasure of reading the paper last week, and so I will base my remarks on what I remember from reading it.

Of course, in the discussion of diet, our thoughts immediately turn to that most important feature of diet; namely, the function of mastication. With the human being mastication of the food is very important. The choice of food is also important. In the whole animal kingdom the shape of the teeth, the shape of the jaw, the way the mandible is connected to the maxilla, have a great deal to do with the choice of food. If we are advocates of evolution, we think the teeth were gradually evolved to suit the kind of food which surrounds the animal; but if we are advocates of the special creation theory, we think the teeth, in the first place, were created to masticate certain kinds of food, so that one way or the other we know certain kinds of teeth do masticate certain kinds of food, or, at least, certain kinds of teeth are intended for animals which subsist upon a particular form of diet. In the lower order of vertebrates (I think it is unnecessary for us to go back to the invertebrates), nearly all of the teeth are conical in shape. They are used principally for prehension, for holding the food while the animal gets it down the throat. And the next step is the bicuspid or double cone, or the two cones fused together. This animal, of course, is a little higher in order than the preceding one, and following that is the triconodont, or three cones, and following that is the quadritubercler, or four cones, and then on up to the five cones, etc It is unnecessary for me to elaborate on that, as you are all familiar with it.

In the different types of animals we ordinarily class the higher types of mammals as the carnivorous, the herbivorous, and the omnivorous animals, the carnivorous being of the lowest order of the higher mammals. These teeth are simply cones merged into sharp cutting edges, so that the animal chops up the food which it takes into its mouth without any effort toward mixing it with the saliva. In the herbivorous animals chewing becomes more important, and their teeth have a more complicated organization of cones, modified to some extent to enable the animal to chew or to triturate the food between the teeth, the elephant having an antero-posterior motion, and the cow, for example, having a lateral motion, more or less.

Man is a heterodont, a mixed type, having molars and bicuspids, and conically shaped teeth, the cuspids and incisors, which are a modification also of the cone, being broadened or flattened out for cutting purposes; the cuspids being cone-shaped, sharp, for tearing meat, and the bicuspids for grinding. This is ordinarily supposed to be the case. Frequently, however, we will find that the bicuspids of man are also intended, to a certain extent, for cutting and tearing meat. The upper bicuspids have two perfect cusps, but the lower bicuspids very often have only a single cusp or a sharp cutting edge.

The essayist spoke of the natural diet of the dog being that of meat. Of course, we all know that the dog chooses meat for his diet, and yet, at the same time, the dentition of the dog is that of a heterodont. He has teeth that are intended both for cutting and grinding, and I think the reason that a vegetable or any other diet, except meat, does not agree with the dog is simply because he fails to mix his food with the saliva, and thereby avoids that necessary predigestion of starches by the saliva, which is performed in the mouth. He takes food into his stomach in an improper condition, and the stomach therefore has to perform double work—work which is not intended that it should perform, and so the dog soon suffers from indigestion and mange. I question sometimes whether a dog would become vicious sooner on a meat diet than he would on a bread or mixed diet. There is not any doubt in my mind but that a dog becomes cross if he has a mixed rather than if he has a natural diet, which is the meat diet. Take the common house dog, the pug, and that dog in a few years becomes very cross and dangerous to have in the house simply on account of lack of exercise and the use of improper food, which causes indigestion.

He spoke of caries being caused by the eructation of fluids from the stomach. That point is very important to us, more important than it would first appear on the surface, because we all know that women in pregnancy are subject to decay of the teeth, it being generally accepted, I believe, that a woman must lose one or two teeth with every child she bears. A woman in pregnancy is subject to eructation, and that eructation is caused by pressure, and the eructation takes place many times during the day and during the night, or so often that the acid from the stomach is perhaps in constant contact with the teeth. The normal secretions of the mouth no sooner wash from the teeth the result of one eructation than another takes place, and I venture to say that that is the primary cause of rapid decay of the teeth under such conditions.

I want to speak of an idea brought out by Dr. Cigrand; namely, the connection between the nerves of the teeth and the auditory nerves. We all know that has been recognized for some time. because the fan-shaped apparatus, which people who are deaf or partially so hold between their teeth (the audophone) aids the patient in hearing. I want to make a suggestion here in connection with artificial dentures for people who play the violin, and that is this: Dr. Cigrand's experiments would indicate to us that it was the rubber which interferes with the connection between the chin and the ear. I would recommend in such cases to make a metal plate, solder the teeth to it so as not to have any rubber whatever intervening between the metal which comes in contact with the mucous membrane and the teeth, and if we should follow that advice very likely the trouble which Dr. Cigrand spoke of would be entirely done away with. I wish to speak of a case that I had a year or so ago. The patient was one of the professors in a university. He was connected with the lecture department. He had been wearing a rubber plate for twenty years, and during that time, when it was necessary to do any public speaking, he suffered from what you might call a mushy articulation, and also from continuous sore throat. Being a personal friend, I suggested doing away with the rubber plate and having bridge work done. I removed his rubber plate about a year ago, and made for him a bridge, shortly after which the soreness of his throat entirely disappeared, and his articulation has been materially improved. Immediately after putting a bridge in his mouth, he went out on a three months' trip, spoke nearly every night during that time, and had no symptom of sore throat.

I desire to say a few words now in reference to meat diet. There is no doubt that it was intended for man to have a mixed diet. The nature of the teeth indicates that, and the teeth indicate the nature of the man, to a certain extent.

The zoologists were at a loss how best to classify the different forms of animals until they made a study of the teeth, and since that time they have had no trouble in making fine distinctions. As to the nature of the food which should be taken into the animal's stomach, I have no doubt that much of the trouble with people in the city of sedentary habits comes from the improper use of food rather than from the character of the food. If we had the intelligence to properly treat the food we take, indigestion would be largely done away with, and we should soon lose our reputation abroad as being people who are suffering from dyspepsia, or the "Yankee disease."

With reference to chewing meat, it is not necessary to chew meat very much. In all animal nature, meat is not chewed, but chopped up, and down it goes. It is not intended to mix the meat with the saliva at all, but that the meat should be taken in a raw state as much as possible. The trouble with the American people is that they cook their meat too much. Go to the average farmhouse and sit down to dinner; if they have a steak for you, it is cooked until it looks like a piece of sole leather. In the cities, our meats are usually treated in a better way. If not overcooked, the man who eats it does so without any reference whatever to the quantity that his stomach demands, so that he overfeeds intsead of underfeeds. To counteract that tendency in my own case, I eat meat once a day, and even then I do not eat very much. I eat a small slice, less than one-quarter of a pound, and I am sure I do not look like an invalid.

It would be a good thing for the Odontographic Society of Chicago if we should mix up in equal parts theory and practice. I think we have a little too much of porcelain inlay fillings (although that subject is very important), and not quite enough of physiological discussion along the lines of prophylaxis.

Dr. George W. Cook:

There are a great many things that I shall not attempt to discuss, particularly that part pertaining to comparative anatomy. Both the paper and the discussion seem to look upon the teeth as essential to life. From a biological standpoint, we know that there are many species, both of the vegetable and animal kingdom, that have no teeth, yet they live, thrive, and do well.

It is presumed that I would discuss this subject either from a bacteriological standpoint or from the standpoint of cell physiology, which I have been more or less interested in as regards the proper food and the elements that go to make up the life processes of both the animal and the vegetable kingdoms. There are certain elements that enter into the protoplasm of life. Those elements are taken in through absorption; the teeth are simply a machine or an apparatus for preparing certain kinds of food to be taken into the differentiated cells. The elements that enter into the building up of tooth structure and the processes that carry on the building up of differentiated cell life are very complicated, and, as has been stated, from a chemical and physiological standpoint, they have been very diligently worked out during the last ten or fifteen years.

The taking in of the elements to build up tooth structure is not accomplished by such substances as chlorides and fluorin, but in the solution. They do not exist as these elements in the process, and consequently all of the nutrition and substance that enters the body, that goes to build up tissue, let it be an animal substance or muscular tissue, is taken in the form of an absolute solution, and these cells enter upon the function of carrying, and in the process of carrying these elements to certain cells they become precipitated, as it were, in proper form, and are deposited as enamel or dentine, as the case may be. As Dr. Powell has said, in animals that live especially on nitrogenous foods, such as meats, the teeth are not used extensively for its preparation; but in the physical attitude of the animal one of the essential things is stimulation. The cells become stimulated, and through the process of stimulation they deposit these various substances, and it is not due so much to how they are prepared by the teeth as it is to how the elements that go to make up the whole are carried on after they have passed from the teeth. If food is taken into the alimentary tract, which leads from the mucous membrane of the mouth to the lower part of the bowel, all through that process there are glands and cells that are specially prepared for secreting or rejecting certain elements. When those cells are in any way interfered with in their physiological action, they do not secrete or do not carry on the functions of life, and this is frequently laid to the improper mastication of food. But it is not the case. It is due to the lack of certain stimulation, either by physical exercise, or by certain food stuffs, or certain stimuli that are taken in and come in contact with these differentiated cells.

In reference to the study of diet as pertaining to disposition, there is no question but that the proper nutrition of animal or vegetable life has a great deal to do with the disposition of many people and of many animals. But I do not believe that the teeth have as much influence for bad as is sometimes attributed to them. I believe that it is due more to the elements of our external environments and conditions, whether we are in the sunshine or indoors. All energy that exists in protoplasmic life to carry on the functions of life is derived from the rays of the sun. It passes into the vegetable, and from the vegetable into the animal, and much depends on what animal or vegetable life it is acting on. The processes of digestion undoubtedly play an important role in the development of the teeth, because it is a well recognized observation on the part of many men that we find imperfect tooth structure in those individuals whose nutrition in early life, and perhaps in embryonic life, has been interfered with. I refer to those people or individuals who develop irregular and imperfect tooth structure, and consequently they are the persons who suffer early decay, perhaps not so much from their mode of living as from the imperfect formation of tooth structure in embryonic and early life.

As to what artificial dentures will do in the case of diet, I believe everyone recognizes that in many persons the diet necessarily would have to be changed. The diet in individuals who have perfect natural dentures is frequently changed, because they adopt this or that which does not suit them, and they change their diet. But that does not necessarily change their disposition. It is true, their occupation and environments may do this. It would take a long series of observations, in my opinion, to know exactly what influence artificial dentures would exert on the disposition of certain individuals.

With reference to the interference of sound, etc., I do not know whether Dr. Cigrand is correct or not. Perhaps he is. When we consider the destruction of tissue which is involved so frequently in the extraction of teeth and the severing of nerve filaments or nerve fibers, we know that it must necessarily interfere with certain nerve functions that are connected with hearing, and I am of the opinion that if Dr. Cigrand would carry out his observations further upon that line, he would come to some interesting conclusions in regard to what this interference of sound may be on the human individual, the changing of diet, the formation of certain products, etc. In the case of the lawyer mention by him, he stated that the lawyer changed his diet, and consequently his disposition was changed. Dr. Cigrand is inclined to attribute that great change to the lawyer not taking as much meat as formerly. The formation of certain end products, nitrogenous substances, is not clearly known, but there is one thing that has been very thoroughly worked out, and that is a mixed diet. The individual who lives upon a mixed diet is more robust, has greater mental and physical endurance than the person who is living on one particular diet, because he has to have so much nitrogen to carry on the physiological functions of the animal economy. Such persons must have so much sodium, so much magnesium, and all the various elements that enter into it and part of the proteid molecules of the body which must be taken into the system. If it can be carried through the animal tissue as a food stuff, it will be much easier to reach it in that direction than it would be in the direction of living directly upon a vegetable diet.

As for carrying elements to the tooth structure, it is a question whether the so-called phosphates and chlorides that the Doctor spoke of come from the bran or other parts of the cereal. There is probably a very minute quantity of the chlorides in the animal and vegetable kingdoms, but physiological chemists are of the opinion that the chlorides are introduced into the human ecomony through nitrogenous substances, such as meat. So to get at the subject from a scientific basis, it would have to be discussed either from a physiological or from a chemico-pathological standpoint, in order to reach anything like a definite conclusion as to what is the method by which tooth structure and the differential cell life are made up.

I have made food stuffs an important study for a long time, as some of you know. I have been trying almost all the elements that go to make up food stuffs, and there is nothing more nutritious to me personally than good pork and beans. But as to the feeding of lower forms of vegetable and animal life, I have also made a study of the differentiation of food stuffs in the growth of bacteria, going back to the lower forms of life, this being one of the most interesting things that there is to-day in the field of biology. It is known that if you change the environments of a bacterium, you change its whole physiological activity within perhaps the course of a few hours. So, you see, the matter of changing the diet, the matter of changing the elements, the environments of the animal and vegetable, is of greater consequence than is sometimes thought.

The inorganic elements that enter into the physiological activities of protoplasm are extremely interesting just now in the field of biology, because there are two schools, one the so-called vitalistic school, the other the so-called physical school; one believing that the inorganic elements which enter into life processes are the sole cause of the so-called vital function of the animal and vegetable life; the other claims that there is truly a vital condition that exists in the cell, and that those vital activities given to the cell or to the body, animal or vegetable, as the case may be, are given to it as a special dispensation from something unknown. So the study, when we carry it back to the simplest forms of life, and gradually advance to the very highest in the kingdom—man—is fraught with great interest. It is a subject that has been comparatively little studied by both the medical and dental professions. It is sometimes extremely wonderful to me how little men seem to know about the true methods of living, about true diet.

Dr. C. P. Pruyn:

We have certainly been entertained this evening with a paper that has taken a large range—diet, dentures and disposition—all of dietetics presented to us in a few minutes; all that there is to be known of dentistry, and all that there is now known of experimental psychology. Just think of it—all in one paper. It is too much for us. We cannot handle it properly. We can only touch on some points here and there because the paper covers too large a field. While the essayist has hinted at different things, if his paper had been divided into a dozen parts and he had taken a dozen different evenings to discuss them, we would get much more out of the subject than by his handling it in this way.

As to the subject of diet, it is generally admitted that diet plays an important part in the animal economy. And while we remember that the dominant power of the world to-day lies in the hands of the Caucasian races, and that the English-speaking people are the most powerful, are we justified in agreeing with the essayist, when he by inference claims that the cause of this dominance is the meat-eating proclivities of the white races? May it not possibly come from several other causes also, notably that of climate, education and environment?

We do not perhaps appreciate the fact that we are living in a city where the brightest and best thought of the world comes for comparison and enlightenment in many different phases of its work. I have not time to mention them, they are so many, but you can readily catch my line of thought.

But what shall we say of the diet of these people? It is a mixed diet we are using, and up to the present time it has been largely a meat diet. But things are changing. Our diet is going to change materially during the next twenty-five years. There is no doubt about it. There will be less meat eaten by the American people, and there is less meat eaten to-day by the people than was eaten ten years ago. Changes are taking place. Some changes are advantageous; some are not. Those that are disadvantageous are the changes that are taking place along the line of oatmeal mush and other slush. Not enough time and attention have been given to foods that need some trituration, such as dry toast, if you please, and pop-corn, and things that call into use our teeth. We allow the chopping-bowl to take the place of our teeth, very greatly to our detriment.

Another point we must remember, that the greatest proportion of the earth's inhabitants to-day are not meat eaters. By far the greatest number of people living on the earth's surface to-day are those who subsist on rice. Rice is the staple article of diet for more than three-quarters of the people of the earth to-day; perhaps four-fifths are living upon rice. We know that rice is a poorer food than wheat. It has not the bone-making elements in it that wheat has. But we, as American people, are too great eaters. We eat too much. It is generally admitted that people of sedentary habits eat twice as much as they need, and our cities are filled up largely with people who, in their youth, worked upon the farm, places where they developed a good strong physique and appetite. They come to the city and their appetite is retained, and they eat more than is good for them, and then they begin to have those diseases mentioned by the essayist, diseases of the digestive organs, and they suffer in consequence There is so much to be said along this line that I could talk a whole evening on that part of the subject alone.

What effect do the different foods have upon the dentures of the people? Is this effect markedly noticeable in one generation, or does it take a series of generations to produce any marked effect? Is not our essayist reasoning too sharply, too pronouncedly—that is, is it possible to arrive at a definite conclusion regarding this matter without having a long series of tabulated statistics?

Another very important point is that of sunshine and outdoor life; also deep breathing. Let us touch on the subject of deep breathing, a world in itself. We do not do enough of it, and as dentists we suffer because we do not. If we took up that subject it would be of great worth to us. By taking it up, we might develop it practically to the exclusion of any particular item in the line of diet. A man may pursue a line of diet which would be inimical to his growth and development in his ordinary style of living; but if he were to develop the idea of deep breathing, which affects every corpuscle that flows through his veins and arteries, he might by that means change the condition of the food which otherwise would be inimical to his benefit I like very much the thought that was implied when the essayist used the word usurpation I think it is proper that we should have this subject before us as dentists for discussion. This is the proper place for it, for the mouth is the vestibule of the body, and this is our particular field of work. We should see to it that our knowledge is well rounded in all that pertains to that which goes into the mouth, etc.

The essayist spoke of the disposition of George Washington changing after having those teeth, that he referred to, made for him. I think he is too positive in making that statement. As we grow older in years, we become less aggressive, and George Washington's loss of aggressiveness, when he became an older man, may have been largely due to the fact of his age rather than to the fact of his having lost his teeth and having made a slight change in his diet. I would not dare to say that because he was less aggressive in his old age it was due to his false teeth. Not at all. I think our essayist is reasoning without due cognizance of the whole aspect of the case.

Again, he spoke of a lawyer having been materially benefited by having artificial teeth and changing his diet. The instance he cites reminds me very much of the experience of many men who take up certain forms of exercise. I know any number of old men who took up the wheel a few years ago as a form of exercise; they did not have artificial dentures, but they are still working away with their natural teeth. They took up a line of exercise which necessitated their being out-doors and enjoying the sunlight, and they slept as they never did before. They had been victims of insomnia before they had taken to riding a bicycle, but as soon as they adopted this form of exercise they had no more insomnia. We cannot reason from one particular standpoint. It is a large field we are touching upon, and we must not dogmatize and think that "one swallow makes a summer."

Dr. Arthur D. Black:

I only have a few words to say, and principally with reference to the question of diet. In the first place, I wish to compliment the essayist on his interesting paper. There are several points in connection with diet, as mentioned in the paper, which I think were positively wrong For instance, the idea of teaching in this day that we should feed a mother lime salts or the earthy salts while she is carrying her baby, in order to make the baby's teeth stronger, is improper and has been proven so. The experiments that were carried on in this country and in Europe some five years ago, in which the teeth of children, of old people, and of people of all classes of society were investigated, showed that there was practically no variation in these teeth in the amount of lime salts. The widest variation, as shown by hundreds of experiments, was less than four-tenths of one per cent of earthy salts in the teeth. The idea of so-called "soft" and "hard" teeth containing varying amounts of lime salts was proven to be wrong. We cannot expect a lot of leucocytes to be hanging around the stomach and every time they see a chunk of lime grasp it and put it in the teeth. We must look after the general diet of the mother in order to preserve her health, and in that way produce a healthy child, which will have good teeth. But the idea of feeding these earthy salts to the mother or to the child, up to twelve or eighteen years of age, while the teeth are forming, is certainly a mistake. The same would apply to the flourides as being extracted from the husks of the grains. It seems to me, from a dental standpoint, our principal teaching in the matter of diet should be: first, the matter of keeping the teeth in a proper condition to chew food well, and, second, instruction to patients in regard to chewing the food well. I think we have a right to direct, to some extent, the matter of diet, and we certainly have a right to study it, but whether we have any greater right in the direction of the diet than any of the other specialties in medicine, I doubt. Of course, we know that the chewing of the harder foods will keep the teeth cleaner and preserve them better, particularly if they chew hard and vigorously.

The idea of a dyspeptic having caries of the teeth on account of the eructation of acids into the mouth is a little far-fetched. I do not believe that eructations of acids into the mouth, no matter how frequently, would be a primary cause of caries of the teeth. Caries of the teeth in such cases occurs more particularly from the general condition of the body, making the persons more susceptible to the disease. In these patients we will find a difference in their saliva, which will allow the growth of micro-organisms and the deposit of plaques on the teeth, and thus caries is more frequently caused in that way than by the simple presence of acid in the mouth.

Another point: I do not believe we take things hot enough into the mouth to crack the enamel of the teeth. I do not believe the mucous membrane of the mouth would stand a temperature sufficiently high to crack the enamel.

In the remarks of the essayist on changes in disposition, the comparison that is made in regard to a change from the natural teeth is practically on the basis of a patient having a good set of teeth extracted and having them replaced with an artificial set. The mouth of one patient was in such bad condition that he had not roots enough left to support bridgework; yet after he had an artificial set of teeth he did not eat as much meat, presumably because he was less able to chew it. It seems to me, such a man ought to be able to eat meat better after he has the roots removed; or even if he is a man who is suffering from pyorrhea, has all the teeth extracted and wears artificial teeth, he is in a better condition to chew meat then than he was before. So the comparison should not be that of a man who has a good set of teeth with a man who has an artificial set.

In regard to temperaments and habits in connection with a change to artificial teeth, there is some question whether the change to artificial teeth has more to do with the change in temperament and habit, or whether the change in temperament and habit at the time has not something to do with the change in foods. We must remember that when people reach an age where they need artificial teeth, they have attained an age when their habits and temperaments are changing, and many people, with their own teeth, will find their foods will change at that time anyhow.

With regard to the soldiers of '61 and '98, to which reference has been made by the essayist, it is hard for me to believe that the farmer boys of '61 had better teeth than our city boys in '98, considering all the advantages the city boys and men have for the care of their teeth. There must be some discrepancy in the figures, and I should say it is largely due to the fact that in 1898 we had fifty men attempting to enlist where they wanted one, and that they were more particular in regard to the men enlisting, or who sought enlistment, than they were in '61. In '61 they were not careful to examine the teeth of prospective soldiers; they wanted every man they could get. The rejection of these men by the army officers is rather a compliment to dentistry. It shows that during these years dentistry has made sufficient progress for these men to know that the teeth are valuable to man.

Dr. Cigrand (closing the discussion):

I enjoyed the discussion extremely. The paper was presented in the form that it was to bring out discussion, and I was delighted with the tendency of the remarks of those who discussed it. I was especially concerned in the emphasis that Dr. Pruyn gave to the importance that this was a dental subject. A large number of dentists present, whom I met before the meeting, felt that it was scarcely a subject that pertains to dentistry, but the discussion this evening has conclusively proven, if it has proven any one thing, that it is primarily a dental subject. There is no dental curriculum complete without it, and the time is coming, gentlemen, when a four or five years' course will compel the dental student to understand more of the foods and diets of man and the diet of the lower animals, and, as Dr. Cook has said, even the food and the culture of bacteria. We must be broader; we should be more scientific, and if this one thing is done to make this a part of our study, it will awaken thought in that direction. It is a duty we owe to ourselves and to our profession that we know more about dispositions, and the foods consumed by the patrons that come to us. I remember some few years ago Dr. Pruyn made an argument before one of our dental societies regarding what mere water could do in relieving distress, improving the entire constitution, with possibly the salvation of the dental organs. I also know that Dr. Pruyn was speaking earnestly and conscientiously when he said that this subject was broad; that it could be divided into six parts, any one of which would take up an entire evening's work. I am satisfied of that. But while the medical profession is making no pretense on this subject; while medical students are graduating all over this country and medical professors are teaching the various subjects, graduates go forth from the medical colleges without any knowledge of diets and foods. I believe the time is coming when courses will be given on diets and foods, and it behooves us to take up this important subject, and I know of no profession more competent to take it up than the dental profession. It belongs to us.

I wish to call the attention of Dr. Black to the fact that so far as a meat diet is concerned, the paper distinctly stated that a meat diet can be prescribed when there is sufficient physical exercise to work off the meat energy. I can take the brightest, the most active gentleman in this audience and, by feeding him meat constantly, and not giving him any exercise, make him the most sluggish, the most sleepy, the most dormant individual that ever trod on our streets. That can be proven, because in taking very largely a meat diet and not taking exercise to work off the meat energy, the system becomes surcharged with uric acid, arising from the residual food in the stomach. This is not theory; it is fact. Let any of you go to two or three banquets a week and go home at no late hour, with the stomach overloaded, and not taking any exercise, you will find that not only will you be physically incapacitated, but mentally incapacitated. You are practically dead. This does not need any further demonstration. We are all old enough to know that our bodies are laboratories, just as unfailing in their results as is any test tube ever put up in a laboratory. We cannot argue against facts.

As regards a meat and vegetable diet, it is known that Ralph Waldo Emerson said that whenever he felt as if he could write a good poem, he must be physically in a condition to do it; that poetry is not only an inspiration, but that the poet must feel physically and mentally prepared to write that poem. He stated that whenever he had written poems, and I say the same for other poets, he had seldom eaten much meat. Any man who works hard mentally will tell you that he does not eat much meat, particularly if he has to go through a long siege of mental discipline. Ask any lawyer and he will tell you that he cannot attend banquets two or three nights a week and then expect to go before a jury and win a case. Heavy meat can only be taken from the body by vigorous exercise, and city life does not guarantee that. The majority of us do not even climb steps. We take the elevators. What kills men in the penitentiaries? It is not the meat they eat; it is because they cannot work off the energy of the bread and meat. The boys of '61 came from the country; they were used to hard labor; they shoved the plough into the soil; they raked hay all day long, and there was no excess of energy or residuum of food in their stomachs; nor were they poisoned with an excess of uric acid in the system. That was the reason they were not refused as soldiers. Just as long as we live this quiet, indolent life physically, and this hard, vigorous, and enthusiastic life mentally, there is going to be a breakdown. Dr. Pruyn emphasized the reasons why some of the old men were getting back their sleep, simply because they adopted the bicycle as a form of exercise; they got out into the sunshine and used sufficient physical force to work off the meat energy. I stated in my paper that our life in the city of indolence physically and great activity mentally led to death and deterioration. In the great cities, in the maelstrom of life, we are taxed from the time we open our eyes in the morning until we close them at night. The physical being is entirely forgotten. You have no physical being, but are simply a live bundle of nerves, a dynamo that is worked from the time it starts until quitting time. You should cut out a heavy meat diet, which overtaxes the physical being.

I stated in the prefatory remarks that evidently the paper would have been more suitable had it been read at a medical instead of a dental society. I have simply given you an inkling of this subject. At a meeting of the Illinois State Dental Society, at Rockford, a few years ago, there was a discussion on the subject "Philosophy of Mastication," the leading dentists of Chicago engaging.

The subject of diet was brought up by one member and he was ruled out of order because he spoke of it. But I am glad that the Odontographic Society has given its approval by accepting the paper, and discussing it. That is a compliment I value much more highly than any of you can realize, because you have shown by your presence and by arguments that it is a dental subject.

I do not wish to detain you much longer, but there is one point I desire to refer to; it is with regard to what was said concerning the life of George Washington. I simply quoted history, as I did not happen to know the gentleman intimately. We can know these men, even though they have been dead a hundred years; people to-day know more about the life of Napoleon than did the French people who stood about him. We know more about George Washington to-day than the colonists ever dreamed about. His records and diary were closed to the public at that time, and yet to-day any man can read them. In his diary, among other things, he speaks of his indisposition as a colonial general, saying, "I cannot masticate my food, and I have dyspepsia." I am not saying this; Washington said that. I have simply referred to history.

I am glad some of the speakers differed from me, because if there is any one thing I despise it is to have someone get up and agree with me all the time. In the first place, I know I cannot always be right, and, in the second place, one is led to believe that the speaker is giving him soft soap. I don't want any of that. I am here to learn from the different views that have been advanced in regard to my paper, and I must say the remarks of the gentlemen who have discussed the paper have been pleasing to me and most instructive. I thank you.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE FOURTH INTERNATIONAL DENTAL CONGRESS.

One of the most astonishing things to note in this busy world is the rapid flight of time. It must come with something of a start, even to those most interested, when we consider that it is only about six months before the congress will be held at St. Louis. The enormous work which must be done in order to make the congress a success leaves all too little time, and every member of the profession who has at heart the welfare of dentistry and the success of the meeting should realize the necessity of immediate action. Unless the profession takes hold with a will—and particularly the profession of America, upon whom the chief burden will fall—the meeting will be far from successful. There can be no success with half-hearted effort. It will not do to let this congress be simply as good as any ever held. It must be better than its predecessors, else the object of holding it will have been defeated.

America cannot afford to father a retrograde movement in anything connected with dentistry. The traditions of the profession in this country are too dear to the hearts of American dentists to permit a meeting of this magnitude to be held in our midst with anything short of signal success. But this success cannot be attained unless there is some very vigorous work done between now and next August. And it will not do to leave much of this work for the days and weeks immediately preceding the meeting. The critical time is *now*, and the next two or three months must see the congress work well organized in every state, territory, or country where dentistry is practiced. Let everyone connected with the movement take hold with a will, and push this most important movement to a successful issue.

WE WANT YOUR ADVICE.

It is probably a fact that there never was a time when our periodical literature was so extensively read as now. Dental journals in general have a wider circulation than ever before, and while the charge is often made that dentists as a body are not great readers, yet no man can come in touch with the profession in the capacity of editor of a widely circulated journal without realizing that there is a very great deal of reading of our periodical literature.

And the most astonishing thing is the variety of tastes displayed by readers, even in a profession whose interests would seem to run along in a pretty well defined channel. This necessitates many departments in a journal to satisfy all classes of readers, and it is sometimes a matter of study on the part of the editor to arrange the departments in accordance with the wishes of his readers. He is usually thankful for advice along this line, and if readers would bear this in mind and offer suggestions from their point of view it would be of great assistance to the editor.

THE DENTAL REVIEW, for instance, will always welcome letters from readers telling what particular kind of matter they most like. Our readers are becoming so numerous now that we feel we must provide a varied program each month for their entertainment, and in this connection one feature is introduced in the present issue in the way of illustrating practical hints. As often as feasible in the future these hints will be amplified by cuts, which will make them more vivid and interesting. Illustrations will also be used more freely in other departments of the journal, and the general make-up improved from time to time as opportunity offers. Any suggestions from our readers as to additional improvements will be thankfully received. We wish to know particularly what you like best in THE DENTAL REVIEW, what you do not like, and what we can give you that will be of the greatest interest. We want to make THE DENTAL REVIEW as perfect as possible, and there is no one in better position to help us than our readers.

THE EDITOR'S DESK.

Good Fellowship.

One evening last month while toasting my shins in front of a grate fire in the delightful den of that well beloved of the dental profession, Dr. Edwin T. Darby, of Philadelphia, the talk ran to professional good fellowship. The surroundings were congenial to such a theme. It was near the midnight hour, a log fire was casting lights and shadows over the room, outside it was quiet as the country—the Doctor lives at Lansdowne, the beautiful suburb of Philadelphia—and the previous associations of the evening with professors and students had tended to foster the best of fellowship. I remarked to Dr. Darby that the longer I lived and the more I came in contact with members of the profession, the more I was impressed with the loyal good fellowship that existed among dentists.

Dr. Darby, whose associations with the profession have been as wide and varied as most men, acquiesced in the sentiment by saying: "I have already stated publicly, and I believe it to be strictly within the facts of the case, that there is more real sincere good feeling and more honest good will one toward another among practitioners of dentistry than among men of any other calling, not even excepting the ministry."

This coming from a man of Dr. Darby's experience and observation is a tribute of no mean order to the personnel of the dental profession, because his point of view has not been confined to narrow limits, nor his associations restricted solely to professional ones. He has been a close observer of human nature, and has always taken a broad view of men and their motives. Withal he is not inclined to be over-sentimental, and everyone knows that when Dr. Darby says a thing he means it—which is a great virtue.

But aside from the estimate of a dentist on this subject, it is also pleasing to note that patients frequently recognize this bond of loyalty among members of the profession. One of the greatest compliments I ever heard paid to any profession came from the lips of a lady who had called on a dentist to complain of a piece of work that some other dentist had done for her. After listening to her story the practitioner said: "I do not know who your dentist is and I do not want to know, but you go back to him and state your grievance precisely as you have stated it to me and I will stake my reputation as a dentist and as a man that he will cordially co-operate with you to remedy the difficulty."

The lady arose from the chair and said: "That is a lesson I shall never forget and I thank you for it. I will do as you say. I am really impressed more than I can tell you with the sense of honor and loyalty existing among you dentists. It is an object lesson for the men of other callings to profit by."

I am far from claiming that dentists do no wrong or underhanded things with each other, but the fact still stands out eloquently that as a class of men they are more harmonious and more truly fraternal than are those of any other pursuit.

RICHES

We see men striving for riches,
  With hands clutching hard after gold;
We witness the battle of business,
  Through methods that scarce can be told.

And we all of us join in the struggle,
  Though our methods may vary in kind;
We forget that the greatest of riches
  Are found in contentment of mind.

BIOGRAPHICAL SKETCH.
XXIV.

MARSHALL HICKMAN WEBB, D. D. S.

"This hand was made to handle naught but gold."

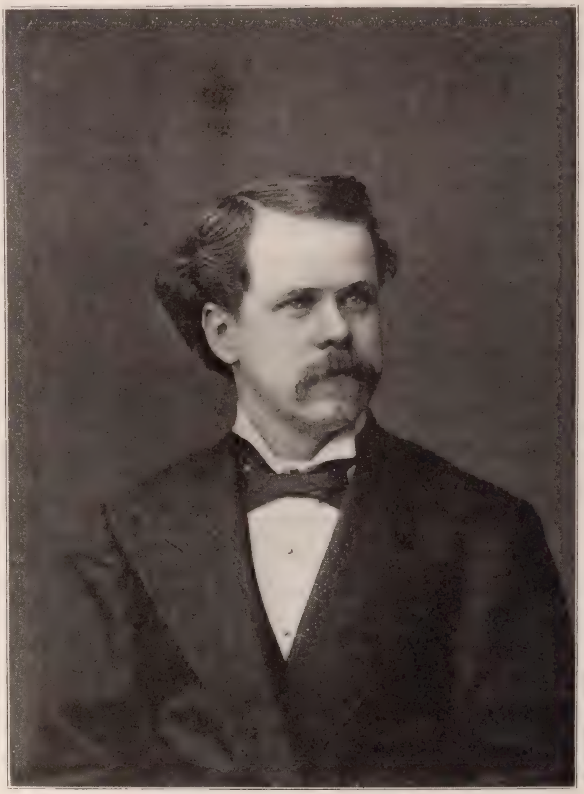
By Burton Lee Thorpe, D.D.S., St. Louis, Mo.

The angels must have smiled and the sun been shining when to Richard and Margaret Webb, at Marlborough, Chester Co., Pennsylvania, October 28, 1844, was born a son, who was christened Marshall Hickman Webb. He spent an uneventful boyhood in his native town, receiving his elementary education at the village public school, giving evidence now and again, however, of the talent that later opened to him a distinguished career.

Richard, the father, was a poor, but eminently respectable and skillful carpenter and cabinet maker, and much of his ingenuity was inherited by young Marshall, who was continually at work experimenting with his father's tools.

At the age of sixteen years, he had made ten violins, carving the bodies, making his own strings and stringing the bows by slyly filching the hairs from the tails of neighboring farmers' white horses. Dr. Wm. C. Speakman, Wilmington, Del., relates the following story of Webb's boyhood: "One Sunday, many years ago, Jonathan K. Taylor, master and principal of the Coatesville Academy, with a Mr. Allen Speakman drove to Fallowfield. While crossing a small brook (Buck Run), Mr. Taylor's observing eye caught sight of a mechanical toy in motion on the bank. They stopped to investigate the contrivance and found it to be a platform upon which two images, marvelously wrought and painted dolls, were dancing, the motor power being a small water wheel under a dam of stones, a cord belt connecting the two by a series of pulleys.

"Mr. Taylor was struck by the ingenuity displayed and kept inquiring, after he reached the Fallowfield farm, who it was that possessed such mechanical talent. He was told that it was Marshall Webb. He manifested such an interest that he was taken down the road to the Webb home to see little 'Marsh'—a tow-headed youngster, exceedingly reticent—who was brought forth. After considerable persuasion on Mr. Taylor's part, young Marshall produced what his father called several 'other jim-cracks' of his invention. Mr. Taylor was greatly interested in this boy genius and remarked



Marshall H. Webb

that he deserved to be encouraged. 'If I had him at Coatesville, I would give him a winter's schooling.' This proposition was accepted by Marshall's father.

"Mr. Taylor took a great interest in the boy and frequently asked him what he would like to be when a man. The boy did not have a bent toward any particular calling, so Mr. Taylor, at odd times, took him about with him. One day they visited the laboratory of Dr. Frank Hickman, who was practicing dentistry at Coatesville, Pa., at that time, and who knew of young Webb's mechanical efforts, and was interested in him. At Dr. Hickman's solicitation, he entered his office as a student."

BOYHOOD HOME OF MARSHALL H. WEBB

The term of pupilage began early in 1861. During this time he continued his general education, under the tutorage of Professor Jonathan K. Taylor, principal of the Chester Valley Academy.

Webb made rapid advancement, and showed marked progress and ability in his professional and academical studies. On completing his apprenticeship with Dr. Hickman, he entered the Philadelphia Dental College and graduated March 1, 1867, immediately beginning his professional career at Lancaster, Pa.

In the later years of his life he maintained offices in Philadelphia and New York, dividing his time between these cities and his home at Lancaster. He was an ardent student, devoting much time to the study of Dental Pathology and Histology, which soon brought him prominently before the profession.

As a clinical demonstrator, Dr. Webb had few, if any, equals. No operation was too difficult or too tedious for him to attempt. He spent much time and money attending dental meetings throughout the country, where he would stick to his post at the chair from six to nine hours at a time, demonstrating the marvelous results of his skill. He confined himself exclusively in his practice to cohesive gold as a permanent filling material and executed some of the most difficult and beautiful operations ever performed. His method was Contour; indeed, "Contour" was his watchword.

If we can but appreciate the adverse conditions through which he struggled and which he overcame, we must acknowledge him one of the giants and wonders of dentistry, for he was one of those who blazed the way and made known the real possibilities of contour work to the profession.

He, like his close friend and admirer, Henry J. McKellops, of St. Louis, was well known for his opposition and utter contempt for amalgam, which he discarded as a filling material in his practice, and undertook to fill with gold all classes of cavities, no matter how difficult or inaccessible.

He took an active interest in everything that would better his profession, and delighted to give others the benefits of his attainments. It was no unusual thing for him to invite dentists to accept his hospitality, that they might have the opportunity of witnessing him operate. His door was always open to students and practitioners from far and near, who journeyed to see his methods, and none came away without lasting benefits.

As a writer he was concise and impressive, ever emphasizing the high ideals that were part and parcel of his nature. To the journals and societies he contributed essays on subjects in which he was well versed, both practically and theoretically, such as: Dental Caries, Cavities in Proximal Surfaces, Attaching Crowns, Artistic Dentistry, Extensive and Difficult Operations, Restoration of Contour, Fillings, Gold Foil, Gold Crowns—Porcelain Faces, Operative Dentistry, Pulp Capping, Importance of the Preservation of the Teeth, and the Electro-Magnetic Mallet. However, the work that best shows his beliefs, ideals, and operative methods, is his "Notes on Operative Dentistry;" "The keynote of which is cohesive gold." This work was written during the eleven months of his illness, just prior to his death, and has proven a valuable legacy to the profession, having been adopted as a text-book in a number of dental colleges. It was published (second edition) in 1883 by the S. S. White Dental Manufacturing Co., who contributed the net proceeds to Dr. Webb's family. In the preface of this book he beautifully expresses his ideals when he says "That in literature, sculpture, painting and music, and in operations, such as dentists ought to perform, it is not the aim of a Dryden, a Michael Angelo, a Raphael, a Beethoven, or a Varney, to write, carve, paint, bring forth in 'concord of sweet sounds,' or to produce in gold, that which requires but little time and skill, and is simply cheap and inartistic; it is the endeavor of the *artist,* whatever the sphere of his efforts, to produce the perfect and beautiful."

As an inventive genius, Dr. Webb has a distinct place in our history. His most noted work was in connection with the Bonwill Electric Mallet; this he remodeled, making it much more convenient to handle, and more reliable. It was mainly through him that it became so popular with cohesive gold workers. He was an enthusiastic advocate of this instrument. It was his hobby and he was ambitious to bring it before the profession, because he firmly believed better work could be done with than without it. In conjunction with Dr. W. G. A. Bonwill he contributed much to the improvements that made "The Bonwill-Webb Electro Magnetic Mallet," the first and best of its kind ever invented, a success.* To accompany this mallet, he devised a set of pluggers that are now in universal use.

As a society man Dr. Webb was equally active. He was organizer of the Harris Dental Association of Lancaster, Pa., and member of the American Dental Association, the Pennsylvania State Dental Society, the New York Odontological Society and the Odontological Society of Pennsylvania, and an honorary member of the Dental Society of the State of New York and several other societies. He was a member of St. Paul's Reform Church, although his par-

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***Dental Cosmos,* p. 535—1880.

ents were of Quaker descent, to which sect he had a strong attachment. He was a member of the order of Masons and American Mechanics and a Republican in politics.

He was married March 25, 1866, to Miss Mary M. Gorgas, of Ephrata, Pa. (now Mrs. J. T. Embree), at this date living in Philadelphia. To them were born three children, Wilmer M. Webb, Katie M. (now Mrs. J. E. Gross) and Marshall H. Webb, Jr.

July, 1881, Dr. Webb was a delegate to the International Medical Congress held in London. While there he read several essays and performed a series of clinics. Small of stature and of delicate physique, he overworked and returned a sick man. His physicians pronounced his last illness a cancer of the descending colon, caused by leaning on the arm of his chair for long periods while operating. From this he died January 1st, 1883, after being confined to his bed eleven months, and was buried in Oakland Cemetery, West Chester, Pa.

Dr. Wm. H. Trueman writes me: "Dr. Webb was a sick man when he left for London. He did in my mouth his last, but one, 'heavy job,' filling four upper incisors, using four books (half an ounce) of gold. I went to Lancaster, arriving on a Monday afternoon. He had done the preliminary work in Philadelphia. He began the next morning, and for two days I was in his chair, my mouth dammed from 8:30 a. m. to 5 p. m. I did not get out, and Webb was at me all that time except fifteen minutes for lunch. I went hungry, not even a sip of water, as we were both anxious that there should be no mishap. One other day he worked for me from 3 to 5 hours and finished about 10 o'clock Sunday morning—six days to fill four teeth. About a week later he went to New York to build up a molar someone said could not be filled with gold. He did it, however, and that was, I think, the last filling he did on this side of the water."

Dr. Edward H. Angle says: "Webb was an inspiration to me, as well as to many others who came in contact with him, and I owe much to him for the encouragement he gave me, when a student, that spurred me on to the accomplishment of better things. He was the most earnest, good-natured man I ever knew. With a large head and a frank, pure face, like that of a divinity, white skin, red cheeks and black hair—in all, a very impressive man, who talked nothing but 'contour' and who was the father of the 'Extension for prevention' idea. The filling of teeth with gold in his hands reached the highest excellence."

Whatever he undertook he never acknowledged defeat, consequently he fell early by the way. He gave more of his time and strength to the cause he loved than he could well afford, and like other professional enthusiasts left his family unprovided for. At his death a score of operators expressed their sense of obligation and sympathy by generous subscriptions to start a testimonial fund, of which Dr. Jas. W. White, editor of the *Dental Cosmos*, was treasurer. Dentists throughout the country who were indebted to Dr. Webb as a result of his clinics and teachings subscribed generously to this fund, which was placed to the credit of Mrs. Webb. Perhaps no higher tribute can be paid to Dr. Webb's character than that of his student, Dr. H. C. Longnecker, who in a biographical notice (*Dental Cosmos*, page 109-110—1883) says:

"Dr. Webb was not an ordinary man. By his professional brethren he was regarded as one of the brightest, most energetic, and withal most self-sacrificing workers in the dental profession. His ambition was to place operative dentistry upon a higher plane, and to attain this end no sacrifice seemed to him too great. His work was at all times marked with a sincere purpose and an honest conviction.

"To the student he was ever ready to lend a helping hand, and no one of his years ever had a greater number of private pupils or more ardent and zealous followers. All of his pupils will recall many acts attesting his interest in their advancement, and will say with one acord that they owe Dr. Webb a debt of gratitude for his unselfish devotion.

"As a clinical instructor he stood without a peer, gentle but firm, always ready, even eager, to demonstrate practically the ideas which he advocated in published essays from time to time; as a student he was earnest and thorough; as a practitioner conscientious, capable and faithful.

"He infused life and enthusiasm among his fellows, and was a hearty worker for the success and advancement of the societies of which he was a member. His efforts in anything he undertook were marked with persistent energy, and though not blessed with a strong physical organism, he was, nevertheless, capable of an immense amount of work.

"No man toiled harder than Dr. Webb, and probably no one has done so much to elevate the standard of operative dentistry. His operations were faultless in point of execution, and there was an elegance about their finish that was truly fascinating. The skill which he attained gave him a prominence in his profession surpassed by none, and though dying so young he fairly was entitled to rank as one of the most distinguished of American dentists.

"Dr. Webb had a love of fun and fondness for caricature, which he indulged without bitterness or cynicism. His arrows were sharp, were aimed with an honest motive, and always hit the mark. His target was the pretender, and no hand has done more than his in so few years of labor to expose shams in the profession and lift up genuine merit to its rightful place. He has written nothing which will not help to make better dentists and better men.

"Of Dr. Webb's home life; of his hospitality; of his relations as husband and father, it need only be said he exemplified everywhere and always the traits of a Christian gentleman. Dear, kind-hearted, good-natured Webb! who is there to take his place?"

The facts contained in this sketch were obtained from Dr. Webb's daughter, Mrs. J. E. Gross, Philadelphia, and from a biographical sketch, *Dental Cosmos*, Vol. XXV, February, 1883, p. 108, by his former student, Dr. H. C. Longnecker, Philadelphia.

Dr. R. R. Underwood, Lancaster, Pa.
Dr. Martin M. Musser, Lancaster, Pa.
Dr. Wm. C. Speakman, Wilmington, Del.
Dr. Edward C. Kirk, Philadelphia, Pa.
Dr. Wm. H. Trueman, Philadelphia, and
Dr. Edward H. Angle, St. Louis.

DOMESTIC CORRESPONDENCE.

To The Editor of The Dental Review:

Dear Sir:—During the discussion at Niagara Falls, at the meeting of the National Dental Association in 1902, of the question as to the propriety and practicability of holding the Fourth International Dental Congress in St. Louis, invitations from nine inviting bodies, including the Exposition Company, the Governor of Missouri, the Mayor of St. Louis, the Missouri State Dental Society and various city and local societies had been placed in my hands to present to the International Dental Federation.

By request of Dr. Thorpe a conference of the members of the National association was held and the question of holding the congress was discussed.

Twenty-five members of the association were suggested to form an organizing committee, but some of the names proposed, including my own, by request of the men named were withdrawn.

The conference resulted in the drafting of two resolutions as follows:

"Resolved, That the National Dental Association of the United States of America hereby invites the committee of the Federation Dentaire International having in charge the promotion of the Fourth International Dental Congress, to designate St. Louis, Mo., U. S. A., as the place, and the month of August, 1904, as the time for holding said International Congress."

"Resolved, That three commissioners be appointed by the president of this association to convey to the Committee of the Federation Dentaire International having in charge the promotion of the Fourth International Dental Congress, the cordial invitation of the Dental Profession of America through its National Association, to unite in the holding of a congress to be called the Fourth International Dental Congress at the time and place stated."

Later, and after the commissioners had gone to Europe, the following was drafted:

"Resolved, That a committee of fifteen be appointed by the president of the National Dental Association for the purpose of taking charge of an International Dental Congress proposed to be held in St. Louis under the auspices of the Louisiana Purchase Exposition in 1904. Such committee to have full power to commence and continue the work of organization.

"This committee when appointed to be for the present a provisional committee subject to the acceptance of an invitation on its way to the committee of the Federation Dentaire International, having in charge the promotion of the Fourth International Dental Congress. In the event of the acceptance of this invitation by the Federation Dentaire International, the said committee to be forthwith clothed with full power to commence and continue the work of organization.

"In case of a vacancy by death, resignation or otherwise, the committee shall have power to fill the same."

In his official communication addressed to the committee of fifteen and the committee of nine, appointed by the International Dental Federation at Stockholm in 1902 and the officials of the International Dental Federation, Mr. Howard J. Rogers confirms the statement many times made by the members of the committee of nine that the committee of fifteen had not been appointed at the time we left America nor did we know of its existence until we returned to the United States.

Mr. Rogers, in speaking of the commissioners appointed to convey the invitation of the National Dental Association to the Federation, says:

"This communication was conveyed by a committee of three to Stockholm. On the day following the departure of the committee, the National Dental Association appointed a committee of fifteen to organize and conduct the congress, subject to the acceptance of the invitation by the International Dental Federation."

The records of the National Dental Association verify this statement. It is quite apparent that no one from America who was at Stockholm knew that the committee of fifteen had been appointed. Although twenty-five men had been named at Niagara Falls as competent persons to form an organizing committee, we were informed before we left that it was not likely a committee would be appointed until after the question was settled as to whether there would be a congress.

The International Dental Federation accepted on the 18th of August, 1902, at Stockholm, the invitation of the National Dental Association, of the governor of the state of Missouri, the mayor of the city of St. Louis, the Universal Exposition of St. Louis, and various dental societies, and decided that the Fourth International Dental Congress should be held in the month of August, 1904, in the city of St. Louis. They further appointed a committee of nine to take the initiative in organizing the congress.

Mr. Rogers says in his official communication: "A question arose as to which of the committees thus appointed, the committee of fifteen or the committee of nine, had the power to organize the congress. Relative to this question also came up the point as to the official connection between the National Dental Association and the International Dental Federation. On this point there is much divergence of opinion. The facts seem to be established, from the minutes of the National Dental Association, that at the Omaha meeting, on August 30, 1898, a committee of nineteen was appointed to represent the National Dental Association at the Third International Dental Congress in Paris, in 1900; that this official committee took part in the Third International Dental Congress at which the International Dental Federation was formed, that the duties of this federation as set forth in the minutes of the Paris meeting were the appointment of an International Commission on Instruction and to prepare for the next International Dental Congress; that the National Dental Association of America, at their meeting in Milwaukee, in August, 1901, received the report of the chairman of the committee of nineteen for the International Dental Congress in Paris, 1900, which report contained an account of the formation of the International Dental Federation, and the part said committee played therein. They accepted the report and ordered it printed.

"Whether or not the acceptance of this report, which seems to have been made in the language ordinarily used in the submitting of similar reports, legally binds the association to a recognition of the federation, has been the point under discussion. The language used on page 239 of the transactions of the National Dental Association for 1901, is 'On motion, it was accepted and ordered printed.' The report was included in the minutes which were read and approved at the next day's meeting. On page 238 a similar phraseology is used in reference to another report. On pages 222 and 229 the same occurs. On the latter page also the annual report of the treasurer was 'received, and, on motion, accepted.' *From this it would appear that the National Dental Association is a member of the federation.* This view would also seem to be recognized by the National Association itself, in forwarding to Stockholm the invitation to hold the Fourth International Dental Congress in St. Louis, the invitation reading: 'The National Dental Association of the United States of America hereby invites the committee of the International Dental Federation *having in charge the promotion of the Fourth International Dental Congress,'* etc.; and further in the appointment of a committee of fifteen that should be provisional only until said invitation was accepted.

"But this does not seem to us at this juncture to be the crucial point. Had the International Dental Federation instructed the committee of nine definitely as to their duties; or had they in response to the joint communication of the two committees in November ruled positively on the point; or had they in response to our communication to them at Madrid laid down the procedure of the Federation, the decision would be easily arrived at.

"For want of such action we are obliged to consider the matter purely from the standpoint of precedent and exposition expediency.

"To resume the finding of facts: The committee of nine was appointed by the federation at Stockholm presumably without knowledge of the appointment of the committee of fifteen. Unfortunately, the power of the committee of nine is not set forth definitely and precisely, either in the official acceptance of the invitation, or in the letter of appointment to the individual members.

"A praiseworthy attempt was made by the two committees at Cincinnati to combine their work, but was refused on the part of the committee of nine, on the ground that such amalgamation was not within their instructions. The matter was then referred to a joint note from the two committees to the chairman of the executive committee of the federation for decision, but the answer was returned that he did not consider himself authorized to select between the two committees, and consequently was obliged to refer the answers to the questions to the next session of the International Dental Federation, to be held in Madrid, in April, 1903.

"On February 6th, the president of the exposition appointed as an organizing committee for the Fourth International Dental Congress, on the part of the exposition, the committee of fifteen of the National Dental Association, following the precedent of this and other expositions of making national associations responsible for the success of the congresses. The powers of the committee were, however, left in abeyance, pending the decisions of the questions hereinbefore set forth. As a result of the various meetings and of such correspondence, the exposition sent to the Madrid meeting by a special delegate a communication—copy of which is hereto attached—particular attention being called to the phraseology of the instructions to the committee of nine on the part of the federation, and an interpretation asked therefor. The reply of the federation to the communication, which has just been received, does not meet these points, but rather suggests an amalgamation of the two committees, the committee of nine having the power to raise its representation to the numerical equality of the committee of fifteen.

"We are convinced that it is impossible, in view of the present status of the discussion, to make at the present time an effective consolidation of the two committees. We are sure that the International Dental Federation would agree with us were they in closer touch with the situation. So large a committee is also impractical, from an administrative standpoint. There seems to be nothing left, in order to create a successful congress, except for the exposition company to define the duties of the committee of organization of the exposition, and suggest the line of co-operation of the committee of the International Dental Federation.

"The fact that the International Dental Federation does not specifically set forth the duties of the committee appointed by it, and hesitates after various appeals to interpret their instruction to the committees, would seem to imply that there was no settled line of policy on such matters, and that the federation does not desire, without further authority from the International Congress, to formulate one.

"In the absence of such definite statement as to procedure, it would seem to devolve upon the Universal Exposition of 1904 to follow the precedent heretofore established, and organize the congress, through its duly appointed committee, depending upon the International Dental Federation, through its committee, to interest alike all the dentists of all countries, and to secure international co-operation. As to the precedent to be followed. we call attention to the action of the Second International Dental Congress, at Chicago, in 1893, whereby the organization was continued to the Paris Exposition of 1900. The authorities of the latter exposition assumed the right to appoint a National Committee of Organization, which provided the ways and means, issued the invitations, appointed the committees, and nominated the officials of the Third International Congress.

"We conclude that, in view of the nearness of the exposition, and the necessity of immediate organization, and in view of the impossibility of amalgamating the two committees, it is imperative to give to the committee of organization of the exposition the power to proceed energetically without further delay. We would respectfully suggest that this is in no wise to be considered a precedent for future expositions, or attempt to define the power of the International Dental Federation or the National Dental Association, but *an action demanded by the emergency of the situation*; and we further recommend that at the time of the congress in 1904, a definite form of procedure for holding future congresses be fixed.

"We therefore instruct the organizing committee of the exposition to proceed in the work of organizing the congress, to obtain the ways and means therefor, to issue invitations, to appoint the necessary committees for preparing the program, for the entertainment of guests, for nominations, etc., and on such committees to give equal representation in membership to the committee of nine, and in all matters to take due care of the rights of every foreign nation, and of the obligations due to the International Federation as the authorizing body of the congress."

(Signed) HOWARD J. ROGERS,
Director of Congresses.

Approved: FREDERICK W. LEHMANN,
Chairman, Committee on Congresses.

The following communication was presented to the Executive Council of the International Dental Federation in session at Madrid, Spain, in April, 1903, by its committee appointed at Stockholm, Sweden, in August, 1902:

DR. CHARLES GODON, PRESIDENT OF THE INTERNATIONAL DENTAL FEDERATION.

DEAR DOCTOR—We are in receipt of a communication addressed to Drs. Patterson and Kirk in which you state that the question left to you to decide as to whether the committee appointed at Stockholm which represents the International Dental Federation or the Committee of the National Dental Association has authority to organize the Fourth International Dental Congress, which is in authority and which is subordinate, has received our careful consideration, and you state that "We have reached the conclusion that reflects our manner of looking at it, and the only decision which we believe we are authorized to take upon the question." Your decision is in accord with all your previous decisions, and is as follows:

"According to resolution 13 and 14 of the International Dental Congress of Paris in 1900, the International Dental Federation has the duty of organizing the Fourth International Dental Congress, hence the committee of nine who was named by the executive committee of the I. D. F. at Stockholm in August, 1902, has this mission."

The above quotation from your communication is a *clear and precise* answer to the questions put to you by Drs. Patterson and Kirk. Following this, however, you state: "We do not believe ourselves authorized to give you the response clear and precise which you desire—that is, to choose between the two committees without giving cognizance of the present circumstances to the entire executive committee and consulting it. In accordance we feel obliged to refer your request to the approaching session of the International Dental Federation, which will be held in Madrid in 1903," in lieu of which you recommend that the two committees unite.

Shortly after we returned from Europe, the committee of the National Dental Association called a meeting at Cincinnati, to organize the Fourth International Dental Congress. The committee of nine met at the same time and place. Dr. Patterson being a member of both committees, requested the committee of fifteen to come to the meeting of the committee of nine. The committee of fifteen refused to do so until after it had organized, after which the members came to our meeting and listened to the reading of the official instructions of October 8th from Paris, those of the 16th not having been received at that time. The committee of the National Dental Association objected to your instructions to us on the ground that they were not clear nor consistent with the communication delivered to Dr. Noel, president of the National Dental Association, by Dr. Aguilar. After considerable debate a committee composed of Drs. Patterson and Kirk was appointed to present a statement of the matter to you, which brought the communication to which we are replying.

It was agreed at the joint meeting of the committees in Cincinnati that nothing would be done toward organizing the congress by either committee until Drs. Patterson and Kirk received a reply from you to their questions, and it was further agreed that your decision would be accepted by both committees as final.

Notwithstanding this agreement a meeting was called by the National committee of fifteen, of which Dr. H. J. Burkhart is chairman, and Dr. Kirk is secretary, to meet in Washington on

December 13, 1902. We protested against this breach of good faith on the part of the committee of fifteen. Our chairman was invited to go to the meeting in Washington, but replied to Dr. Burkhart that the committee could not meet unless it violated its agreement, and assured Dr. Burkhart that he would not go to Washington, as he intended to keep his promise. In response to our chairman's letter, Dr. Burkhart replied, closing with the following paragraph: "Whatever action our committee takes in Washington, and whatever negotiations in the future are considered necessary, will be carried on with the federation officials abroad."

After this letter had been received you can see that we could not join with the National Committee, as Dr. Burkhart made further consultations impossible. If you in your decision of December 20th had stopped at the end of paragraph *one,* we could have gone on and organized the congress by requesting that one or more members be elected from the inviting bodies, viz.:

The Louisiana Purchase Company, The National Association of Dental Faculties, The National Dental Association of the United States of America, the governor of the state of Missouri, the mayor of the city of St. Louis, The National Association of Dental Examiners, The Dental Association of the State of Missouri and Eastern Kansas, The Odontological Society of St. Joseph, Mo., The Society of Dental Science of St. Louis, The Odontographs of Western Missouri and Eastern Kansas, thus forming a committee to organize the congress.

The National Dental Association through its committee of fifteen has arrogated to itself the sole duty of organizing the congress contrary to resolutions 13 and 14 adopted on the last day of the last session of the Third Congress Dentaire International.

Since our appointment we have tried in a dignified manner to represent the executive council and uphold the honor and dignity of the Federation Dentaire International. In order to secure harmony and to insure the co-operation of all the dentists of America, we agreed with the committee of the National Dental Association at Cincinnati to ask you to make a positive statement and make it so clear that it could not be misunderstood. Our committee has taken no action, nor has it announced what course it intends to pursue.

The officers of the executive council made a decision which the committee of the National Dental Association refused to accept, and which was not of itself entirely decisive. In making that decision the officers of the executive council of the International Dental Federation said that if their communication was not satisfactory, the matter must be left until a full meeting of the council at the time of the meeting of the International Medical Congress in Madrid in April of this year. There it now rests, and the committee appointed by the federation at Stockholm is ready cheerfully to concur in any decision there made. If the federation or its council desires to abdicate and withdraw its authority over its own organization, its committee, while regretting that it has been placed in an embarrassing position, will very gladly be relieved of all further responsibility. Its members have no personal ambitions to serve and did not seek appointment. They will lay down their responsibilities as soon as informed by the power that appointed or commissioned them to do so.

In view of the facts above recited, which are in substance that the committee of the National Dental Association does not recognize the authority of the Federation Dentaire International to organize the Fourth International Dental Congress in accordance with the regulations adopted at the close of the Third International Dental Congress, but purposes that it shall be practically independent of that body, thus establishing a precedent which we believe will be fatal to the aims and purposes which the federation was established to further, and which are pratcically the same as those of the International Medical Congress, we believe that the best interests of all concerned demand that the acceptance of the invitation to hold the Fourth International Dental Congress in St. Louis in 1904 be formally withdrawn, but we recommend that the members of the federation individually pledge themselves so far as their ability extends to attend the congress of the National Dental Association of the United States to be held at the same time and place, and to further its interests in every way possible.

In the event that this course is not by the executive council deemed advisable, we ask the federation to accept the resignation of the members of the committee of nine appointed at Stockholm, that the efforts of these representing the National Dental Association of the United States may not be embarrassed or impeded in any way.

Respectfully submitted,
(Signed) TRUMAN W. BROPHY, Chairman,
J. D. PATTERSON,
GORDON WHITE,
M. R. WINDHORST,
WILLIAM CONRAD,
H. A. SMITH,
W. C. BARRETT,
W. W. WALKER,
S. H. GUILFORD.

The following is a statement bearing on the official relations of the chairman of the federation committee with the executive council of the National Dental Association:

There is a question which bears upon me, personally, and that is in regard to the commissioner's certificate and a statement made by Dr. Kirk to the effect that he gave me two letters of instructions which I assert he failed to give me, nor did he communicate orally any word to indicate that the executive council of the National Dental Association had appointed Dr. Eugene Smith as chairman of the commissioners.

The commissioner's certificate handed me by Dr. Kirk when I was leaving the hotel at Niagara Falls, I opened and found that, as originally proposed in the conference, my name appeared first, and I supposed it contained the final instructions from the National Dental Association on the subject and that I was chairman, although I never so represented myself to the International Dental Federation, in evidence of which I quote from a letter to me from President Godon and Secretary-General Sauvez in answer to a question by me as to what I did when I presented the numerous invitations to the executive council of the federation:

"To answer the principal point of your discussion, we, both of us, Dr. Godon in the function of president of the executive council, and Dr. Sauvez in the function of secretary-general, declare that at no time in Stockholm did Prof. Brophy present himself to the International Dental Federation as president of the committee appointed to invite the federation to the congress at St. Louis.

Prof. Brophy had simply delivered the papers of which he was bearer two days before the arrival at Stockholm of Dr. Eugene Smith, and that was very fortunate, because the question had been considered serious enough to necessitate a discussion which lasted several days.

"The Secretary General, The President,
"E. SAUVEZ. CHAS. GODON."

As to what occurred in Stockholm, let me say, Dr. Smith arrived on Saturday, August 16th, and was present at the session that afternoon and on the 18th and 19th. There was no session on the afternoon of the 18th, and as the meeting adjourned at 3 p. m. on the afternoon of the 19th he was there but little.

He had a letter from Dr. Peck informing him he was chairman of the committee, but I explained what had occurred, that I had received the certificate from Dr. Kirk as I was leaving the hotel. I told him his name was announced at the meeting as chairman, but the certificate was given me by Dr. Kirk when we left and that he informed me it was all right and correct as written, consequently I thought it was final.

Dr. Kirk gave me, at the same time he gave me the engrossed certificate, two letters, one for Dr. Barrett and one for myself. They were credentials as delegates to the International Dental Federation and had no bearing on the question of the congress. I gave Dr. Barrett his credentials and kept my own. However, I asked Dr. Smith during our conversation in Stockholm to hand in his credentials to the executive council of the Federation Dentaire International, but he said he did not think it worth while to do so. I have an affidavit from a member present at Stockholm in proof of the correctness of the above conversation.

I received a letter from Dr. Peck early in the afternoon of July 29th, in which the committee was named as follows: Dr. Smith, chairman, Dr. Brophy and Dr. Barrett. The only other communication from the council which I ever received, except the two letters referred to, was the commissioner's certificate, which I opened and read in Dr. Kirk's presence and was assured by him that it was correct as written.

On making inquiry of the secretary, Dr. Peck, as to the contents of the letters he gave to Dr. Kirk to deliver to me, he informed me that he gave Dr. Kirk four letters, two for me and two for Dr. Barrett, two of them to announce the committee as Smith, Brophy and Barrett, and two were delegates' certificates from the National Dental Association to the International Dental Federation. Dr. Kirk gave me the delegate certificates but not the letters announcing Dr. Eugene Smith as chairman of the commissioners.

I would not bring this matter to your attention were it not for the fact that a story has been circulated that I failed to carry out the instructions of the National Dental Association, a story absolutely untrue.

Truman W. Brophy,
Of the Board of Commissioners of the National Dental Association to the International Dental Federation.

The foregoing statement was made to the executive council of the National Dental Association, and the subjoined resolutions were adopted at the annual meeting at Asheville, N. C., August. 1903:

Chicago, Oct. 22, 1903.

Dr. Truman W. Brophy, Marshall Field Bldg., Chicago.

Dear Doctor—Following is a copy of the resolution presented by Dr. B. Holly Smith to the executive council of the N. D. A., at the recent meeting in Asheville, N. C., and when presented to the association was adopted:

"Whereas, some misunderstanding has arisen in regard to the action of the delegates of this association to the F. D. I. (at Stockholm, Sweden), and numerous reflections upon one of our representatives have been circulated, your executive council desires to propose the following: Resolved, that after a thorough examination of events your council recommends that Dr. Truman W. Brophy be exonerated from any unjust or disloyal action at the aforesaid meeting."

Sincerely yours,

(Signed by the secretary of the association) A. H. Peck.

The Third International Dental Congress in Paris, in 1900, unanimously adopted the resolutions providing for the creation of the International Dental Federation and directed the federation to organize and prepare the Fourth International Dental Congress. The organizers of the Fourth International Dental Congress to be held in the United States of America in August, 1904, have set aside the decision reached in Paris, and this too with a knowledge that our National Dental Association was a member of the Third International Dental Congress, nineteen delegates having been sent to represent it. Notwithstanding that no effort was ever made by the federation committee to organize the congress, but to conscientiously observe and to obey the instructions of the executive council of the International Dental Federation, the committee realizes that through it the federation should have requested the various inviting bodies to have made up the organizing committee.

In closing this communication I must state that the officers and members of the International Dental Federation are loyal to the dental profession and dental organizations all over the world, and whether any of them believe that the Paris resolutions, which were unanimously adopted by a vote of all the delegates of the nations of the world, should be set aside by any one nation remains to be ascertained.

It is the earnest desire of the federation to see a great meeting in St. Louis in 1904, and the officers and members will be liberal contributors in papers and clinics, that the highest and best results toward the elevation of dentistry may be attained.

January 15, 1904. TRUMAN W. BROPHY.

This report was partially prepared for the press in October last, but owing to a long and serious illness, I have not until now found time to complete it. T. W. B.

NEW YORK LETTER.

Feb. 1, 1904.

MY DEAR MR. EDITOR:

The January meeting of the "Institute of Stomatology" was held as usual at the "Chelsea" in West Twenty-third street.

All the "talent" was native, *i. e.*, members of the "Institute" from this city.

Dr. S. F. Howland was the first speaker, on "Treatment of Sensitive Necks of Teeth." His method, and one which he claimed to be a very successful one, was the use of tannic acid. Drying the tooth, he would apply a saturated solution of tannin in glycerine, rubbing it well over the sensitive surface. In reply to questions, he said that it was serviceable in cavities as well, and that he rarely had a return of the sensitiveness.

He was followed by Dr. T. W. Onderdonk, who presented a dentometer and matrix holder combined, and some scalers—also a tooth crown heater for use with electricity to remove crowns set with gutta percha, and a combination of cord and cable for engine to avoid the nearness of cord to face, and yet have all the advantages of the duplex spring. The dentometer is a very clever device, enabling one to secure accurate measurement—using a piece of copper or any thin metal and cutting it to festoons—trying it from time to time so that an exact pattern can be cut in gold with almost no waste; at the same time it is an excellent matrix holder.

His scalers are built upon the principle of sailors scraping the mast—not done with a flat edge, but a concave one to somewhat fit the mast.

Dr. Chas. Otis Kimball presented a few devices—one was the use of a rubber polishing cup reversed, over the end of the handpiece to prevent grit and moisture from entering it, when polishing the teeth.

He had had some mandrils made with a little stop soldered on so the cup would not work down.

He also presented some instruments for holding back the gums when filling labial and buccal cavities, and a double-end instrument with flattened, thin ends, on one end of which a minute piece of Lake Superior stone was fastened with shellac and on the other some corundum, making excellent polishing instruments.

In some of the discussion during the evening regarding the use of gold and amalgam or gold and tin in filling, an instance was spoken of where a bar of gold and a bar of lead had been bolted together for some reason. In the course of time it was found that the lead had actually worked into the gold and the gold into the lead, forming complete union.

Dr. Herbert L. Wheeler described the "home manufacture of formaldehyde for sterilizing purposes," using sponge platinum over wood alcohol.

Dr. H. W. Gillett described the Spaulding porcelain jacket crown at some length. It is certainly a very artistic crown.

Dr. D. C. McNaughton presented several articles as the contribution of a gentleman retiring from practice. Among them was a double denture carved entirely of ivory.

Dr. Finn L. Fossume exhibited an ingenious attachment for the handpiece, which, working on an eccentric, will carry a small file or polishing point and, working rapidly, will enable one to do much by the engine that is now done by hand.

Altogether it was an instructive evening.

The annual meeting of the Odontological Society of New York, which is always a sort of a "love feast," occurred Tuesday evening, January 19th, in the large hall of the Academy of Medicine, 17 West Forty-third street.

The president, Dr. John I. Hart, occupied the chair. There was the usual large attendance which this annual meeting brings out.

We noted especially visitors from Boston and other portions of New England; also from Philadelphia; and of course New Jersey was well represented.

The west was ably taken care of by the essayist of the evening, Dr. C. N. Johnson, of Chicago, whose paper, entitled "Principles Underlying the Insertion of Proximo-occlusal Gold Fillings in Bicuspids and Molars," was well received and commented on very favorably since. The subject was presented in his characteristic clear-cut and attractive manner and met with a hearty reception. There were several college representatives present, and all agreed with Dr. Johnson in the main. On some minor points—things in which perhaps one's individuality might cause a slight difference of method—there was some divergence of opinion.

Getting away from the subject somewhat and branching off into what form of gold to use, or what combination, gave Dr. M. L. Rhein an opportunity to oppose Dr. Johnson beyond what the paper would have allowed. Dr. Johnson advocated the square, flat seat as an anchorage—no pits or grooves— and the use of non-cohesive gold for at least the first third of the operation. He enlarged upon the value of proper contouring, and in that connection, speaking of the wedging of food between improperly contoured fillings, he drew attention to a probable cause of such wedging between sound teeth, viz: the cusp of an opposing tooth so striking at the point of contact of its two antagonizing teeth as to wedge or spring them slightly, thus allowing food to enter. Dr. A. R. Starr spoke of this later as an entirely new idea to him.

The discussion was opened by one whom we always delight to listen to—Dr. E. T. Darby, of Philadelphia. After complimenting Dr. Johnson, as did all who took part in the discussion, he said that he would differ in regard to extreme cutting away in the anterior teeth, but agree with Dr. Johnson in regard to bicuspids and molars. He said that Dr. Bonwill said he never cut too much, but too little. Dr. Darby felt convinced that we cut too little, especially buccally and lingually. He said in referring to the use of non-cohesive gold that it is adaptation we want rather than hardness, and it is the "adaptation that saves the teeth." He referred to the great saving of time by using non-cohesive gold for a large portion of the operation. Referring again to Dr. Bonwill, he spoke in approval of using gutta percha for months in such cavities between bicuspids and molars until a large space should be secured, permitting of complete contouring.

Dr. A. R. Starr, of New York, while agreeing in the main, would modify the shape which Dr. Johnson advocates. His modification results virtually in a groove at the cervical border and that which amounts almost to pits at end of the groove by reason of being at a sharp right angle. He illustrated the difference on the blackboard, and suggested the use of some of the so-called sponge golds—Solila, Mat, Moss Fibre, etc.—in starting the filling.

Dr. S. G. Perry, of New York, said the paper was not one to be discussed, but one to be commended, especially for the simplicity of method as described.

Dr. M. L. Rhein, of New York, claimed that no groove or pit or depression was needed as a starting point. He suggested the use of a very thin layer of oxyphosphate on the gingival floor in which he would anchor, while plastic, the gold he intended to use. It was also claimed that it would be successful in the same way that inlays are. Spoke in favor of using cohesive gold throughout on the ground that it would be more solid and stand stress much better than a combination filling. In large operations he would have two or even three sections or sittings. He claimed that he could and did make satisfactory fillings under such conditions, and passed around a tooth which he had filled in this manner, out of the mouth, before several gentlemen present. After filling a portion, it was immersed in water, dried, smeared with vaseline, cleansed with alcohol, and more gold added. He admitted that the question of personal equation must be taken into account in such matters.

Dr. L. D. Shepard, of Boston, complimented Dr. Johnson on his "excellent paper," especially because it was "so practical." Said he was opposed to so much cohesive gold; he advocated the use of tin instead of non-cohesive gold.

In closing, Dr. Johnson thanked the gentlemen for the manner in which they had discussed his paper, eulogized the Odontological, called attention to the number present from a great distance, and wound up by replying briefly to Dr. Rhein. Dr. Johnson more than "held his own" in his reply, especially when he said that there is more art mixed up with our work than we have any idea of. That this idea greatly sustains him in arduous operations. He spoke of the "poetry" of such fillings, the picture in the mind's eye and the desire on his part to finish one operation—rounding it out to the rhythm and poetry of his mind, while it was all present. Said if deferred to a later date much if not all the poetic effect would be gone. His description of this was beautiful in the extreme and was enthusiastically applauded, showing how much he had appealed to all present. Dr. A. W. Harlan of Chicago was in the audience, but certainly was not seen by the chairman.

On adjournment, the folding doors to the banquet room were thrown open and a fine collation served to the company.

On January 11th, at the new Assembly Rooms on Pierrepont and Fulton streets, Brooklyn, the annual meeting of one of our most live dental societies occurred.

Promptly at eight o'clock (a very unusual occurrence in any society) Dr. Hamlet, the president of the Second District Society of Brooklyn, called the assemblage to order.

Invitations to attend and participate in this meeting had been extended to the Central Dental Association of Northern New Jersey, the First District Society of New York, the Odontological Society and the Institute of Stomatology, and a fair representation from each of the societies was present.

The programme for the evening was a promising one. It was a departure from the "rutted way" we are so wont to travel and was enjoyed much by the majority. The essayists of the evening were Dr. L. P. Haskell of Chicago and Dr. N. C. Leonard of Nashville, their subject "The Insertion of Artificial Dentures."

It hardly seems possible, but Dr. Haskell told us that he has been practicing for fifty-nine years. He said that in these days the average students at the dental colleges shirk prosthetic work, and that in consequence they are sadly deficient and seriously handicapped when they enter upon practice for themselves. It takes longer to acquire knowledge of prosthodontia than of operative dentistry. It is not such inviting work, and the presence of a nice young woman in the chair tends to draw the young man away from the laboratory.

The introduction of vulcanite about forty years ago has contributed its force to cheapen dentistry and is accountable for at least 80 per cent of the excessive absorbtive dental conditions we meet with in practice, due principally to the non-conductivity of rubber. One part of the dental arch, though, is practically unchanging, and that is the center of the palate.

Of course the first consideration when about to supply artificial substitutes is a perfect plaster impression.

Dr. Haskell recommends metal as the best base for the mouth (excepting continuous gum). One set of dies he contends are sufficient to shape plates to.

For procuring molds he uses sand impregnated with lard oil—vegetable oils burn out—Babbitt metal for the die (which is composed of copper 1 part, antimony 2 and tin 8 parts), and a combination of lead and tin for the counter die. The main feature in making dies is to pour the metal while it is just hot enough to flow nicely. He attaches all teeth to metal plates with vulcanite, using the loop punch for making attachments. He spoke highly of aluminum. In answer to questions as to the deteriorating propensity of the metal in some mouths, he said it was defective—scaly—aluminum which probably causes the trouble and not the action of the secretions on the metal.

Plates are made to go over the alveolar ridge and as high as possible, especially at the canine eminence.

Lower plates, he said, were the bane of the dentist's life. Weighted ones he claimed were not necessary, which is a conclusion he had arrived at after personal experience. The weight would cause the denture to shift from its moorings when he inclined his head in any direction.

Faulty occlusion, he said, was the cause of more failures than any other. Do not allow the six anterior teeth to touch. It is impossible to tell how a set will look in the mouth unless they are tried in before being completed.

Dr. Leonard took the floor following Dr. Haskell and chose to discourse one phase of the artificial denture problem, namely, atmospheric pressure. The gist of his paper was that the so-called vacuum chambers are more disadvantageous than beneficial. His atmospheric conclusions should make good reading.

Dr. J. Bond Littig opened discussion of the subjects presented. He started, as did Dr. Haskell, with the student, and said that the completion of a man's education at the college was really the "commencement" and not a finish.

Dr. Haskell's theories against weighted dentures were contradicted both by Dr. Littig and Dr. John Meyer of New York, who has had probably forty years' experience principally as a continuous gum worker. They both said that weighted dentures have helped them out of more difficulties than any one thing with the exception of the use of vacuum chambers. They admitted that in a short time the vacuum chamber became inoperative, but served its purpose while it lasted.

Dr. Sanger prefaced his remarks by saying that there seems to be a tendency at all times to "knock"—implying, it is presumed, to radically disagree with somebody or anybody. He made a good point when saying that both forces, suction and adhesion, as described by the essayists, were brought into play; and without one the other would be inefficient.

Dr. John Meyer said that the soft folds of tissue along alveolar ridge prevented proper adjustment of a denture, so he cuts them away or removes by cauterization before taking impressions.

Finds the best compound for his purposes in die making to be 1 of bismuth and 6 of tin, but unlike Dr. Haskell, he needs several sets of dies.

As to vacuum chambers, "Why, where lower jaws are very shallow, I even place air chambers in them, deep ones too, and get a little bunch of raisins in two weeks. That helps." This speech of the doctor's, told with his German accent, created much merriment.

Another point which he emphasized was not to take into too serious consideration the patient's appearance when a case presents in which it would seem necessary to set the teeth well outside of the ridge. Don't do it, but make the occlusion as well as the inclination of the teeth well inside.

After further discussion by a few others the essayists were called upon to close the remarks. Dr. Leonard reiterated his contentions. Dr. Haskell told the story of the preacher who, wishing to impress his congregation, thought to illustrate in a practical way, so finally summed up by saying, "This road leads to hell, that to damnation." One coon said, "If that be the case this nigger takes to the woods."

One week later, January 18th, at the meeting of the Central Dental Association in Jersey, Dr. C. W. F. Holbrook of Newark gave "Some Hints on Prosthetic Dentistry" which were very good because they were very practical. One was a method of making interdental rubber splints. The models are not destroyed by the system, which is to place over the teeth of the impressions, upper and lower, thin tin-foil, then build up with wax a splint of such shape as is desired; the tin foil permits of ready removal from the models. The wax is invested in the flask and the usual procedure followed. The tin foil assists in finishing the case.

He also showed a case of very prominent gums (alveolar ridge) and short lips, such an one as will not tolerate *any* fullness.

The teeth were set on the ridge as usual, but to assist in retention a gold band about one-eighth inch wide was made to fit close to the model well up under the lip, extending from first molar to first molar and attached to plate.

He also described a saddle bridge system the feature of which was the attachment of porcelain teeth by means of cement. In other words, the porcelain is not exposed to the soldering flame at any time. The method consists of the usual abutments with the saddle soldered thereto, then after determining the position of the teeth, 22k gold plate is burnished to the backs thereof with just enough gold lapping over edge all round to form a receptacle to hold the tooth. At the position of the hole in back face of the tooth a puncture is made in the gold and the edges burnished definitely against the sides, the hole is then filled loosely with gold foil or moss fiber gold, the metal cup with foil is removed and solder flowed into the foil and uniting it with the cup, which results in a staple pin, which when the tooth is replaced on metal cap fit excellently. The teeth with their metal backings are then assembled, waxed to the saddle, the porcelains removed and cups, saddle and all invested and soldering completed. Finally the porcelain teeth are cemented to place.

The foregoing is really Dr. R. M. Sanger's method, as he first demonstrated it before the Odontological a year or more ago.

Dr. Holbrook works all porcelain inlays from oxyphosphate models.

Sincerely,

"THE BOROUGHS."

BOOKS RECEIVED.

PATHOLOGIE DES DENTS ET DE LA BOUCHE, par le DR. L. FREY, ancien interne des hôpitaux de Paris, professeur à l'Ecole dentaire de Paris, dentiste des hôpitaux, et G. LEMERLE. 2e *edition.* 1 vol. in 18 de 280 pages, avec 35 figures, cartonné: 3 fr. (Librairie J. B. Baillière et fils, 19, rue Hautefeuille à Paris.)

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

◆

To Keep Instruments Sharp:—Chisels, excavators, etc., may be kept sharp by an occasional rub with an engine disk.

SYLVESTER MOYER, Galt, Ont.

◆

Adjusting a Matrix:—Free access, a good matrix and folded sheet steel to wedge space between matrix and adjoining tooth give you a firm "false wall" if you are inserting gold with hand pressure.

HOMER ALMON.

◆

Erosion:—In cases of erosion make the fillings *concave* on the surface to protect margins from acid secretions, which will then accumulate in the saucer-like depression and expend their effect on the filling material. F. W. STEPHAN, Chicago.

Convenient Method of Mounting Disks:—Two disks mounted on the mandril with the smooth surfaces in contact, will in many cases be found to work nicely where two surfaces of a disk can be used to advantage. R. M. Pearce, Rock Island, Ill.

Cleaning Impression Trays:—Mercury and whiting rubbed together and applied to impression trays after removing wax, plaster, etc., keeps them looking like new. This suggestion I received from Dr. McCulloch of Perth, Ont.

A. W. Thornton, Chatham, Ont.

Avoid Gossiping With Your Patients:—Too many dentists use their operating chairs as barbers are said to do—a place for dispensing gossip. Cultivate a proper professional attitude of kindness and affability, but do not gossip with your patients.

C. R. Taylor, Streator, Ill.

Don't:—Don't "ride a hobby" with your eyes shut. If you do, your dismounting will be abrupt and undignified. Watch ways and means for yourself and draw your own conclusions.

Don't expect to get along without mistakes and failures and avoid repeating them. That would be failure indeed.

H. Darling West Bay City, Mich.

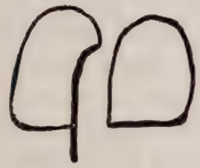
Swage for Adapting Caps to End of Root:—Cut a disk from a rubber band (such as is used for holding books) about the size of the end of the root. Burn a hole through the disk to fit over the post, and with a bur in the engine bore a hole into the end of a piece of wood which is about the size of the end of the root. Place this over the post and use as a swage.

J. Mills, Brantford, Ont.

Matrix for Contour Porcelain Inlays:—As an aid in building out the cutting edge of an incisor to the proper contour and width where porcelain is used, allow the matrix to project beyond the cutting edge of the tooth far enough to bridge across the space between the wall of the cavity and the proximal tooth as in No. 1. Just before the final removal of the matrix from the cavity bend the projecting end of platinum at right angle across the space as in

No. 2, being careful to hold the matrix firm at the angle, leaving margins sharp and well defined. Remove carefully and you have

1.



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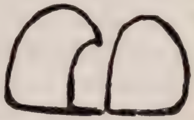


a guide for contour and length, besides a wall to retain the porcelain in the position required at the cutting edge.

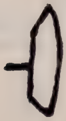
OLIVER MARTIN, Ottawa, Ont.

Gold Plate Your Steel Broaches:—Steel broaches used for carrying medicines, which are decomposed by steel and the mineral acids, should be gold plated. These instruments, and in fact all steel instruments, such as abscess syringe points, etc., which must necessarily come in contact with medicinal agents, can be quickly and cheaply gold plated with the plating solutions without a battery. As nothing used in the treatment of teeth attacks gold, and the steel broach being strong and stiff, the advantage of the gold plated broach is obvious. It has been claimed that steel cannot be gold plated without an initial plating of copper, but if you try the solutions made to plate without a battery you will find that it can be done successfully.

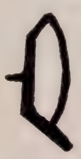
H. B. DENTON, Eveleth, Minn.

Solid Tip on Facing with 24k Front:—Bevel the incisal edge of the facing as in No. 1 and adjust 30 g. pure gold backing, ex-

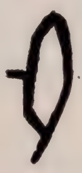
1.



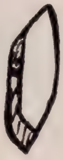
2.



3.



4.



tending the backing beyond the labial angle of the incisal edge as in No. 2. The extended end of the backing should now be turned down, making the angle at the labio-incisal edge, care being taken that the anterior surface of the gold is continuous with the plane of the labial surface of the facing as in No. 3. Burnish the backing to the facing, using sharp nose pliers to "nip," backing up at the disto- and mesio-incisal corners. This will cause backing to "hug" incisal edge. A little wax should be placed in the joint formed by the gold and porcelain at the labial surface to prevent water or plaster from flowing in when the case is invested. Invest and flow with solder. If care has been taken to make the extended portion of the backing continuous with the anterior surface of the facing very little grinding will be necessary, and a solid tip of any desired length with a 24k front is the result. No. 4. A tip of this kind is found to wear well and will protect the facing.

N. L. **Burke**, Benton Harbor, Mich.

MEMORANDA.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

The next annual meeting of the American Dental Society of Europe will be held at the Hamburger Hof, Hamburg, Germany, April 1 to 4, 1904.

Charles J. Monk,
Secretary.

MINNESOTA STATE DENTAL ASSOCIATION.

The twenty-first annual meeting of the Minnesota State Dental Association will be held in St. Paul on June 16, 17 and 18.

Geo. S. Todd,
Hon. Secretary.

IOWA STATE DENTAL SOCIETY.

The forty-second annual meeting of the Iowa State Dental Society will be held at Des Moines, Tuesday, Wednesday and Thursday, May 3, 4. 5, 1904.

W. R. **Clack**, President, Clear Lake, Ia.
C. W. **Bruner**, Secretary, Toledo, Ia.

CALIFORNIA STATE DENTAL ASSOCIATION.

A union clinic of this association with the Alumni Association of the Dental Department of the University of California will be held May 16-19, 1904, at San Francisco. Efforts are being made to insure a large and successful meeting, and the profession of the coast are cordially invited.

BOARD OF DENTAL EXAMINERS OF CALIFORNIA.

The Board of Dental Examiners will hold its next examination in San Francisco, commencing May 23, 1904, and will also hold an examination in Los Angeles, commencing June 13, 1904.

F. G. **Baird**, Secretary,
502 Sutter street, San Francisco.

NEW JERSEY STATE DENTAL SOCIETY.

The New Jersey State Dental Society will hold their next annual convention at Asbury Park, N. J., during July 21, 22 and 23, in the

Auditorium. The exhibit committee are now prepared to allot space to exhibitors. Make all applications for space to the chairman.

Dr. W. G. Chase,
Princeton, N. J.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners will hold their annual meeting in the Coliseum building, corner Thirteenth and Olive streets, St. Louis, Mo., August 25, 26, 27, beginning promptly at 10 a. m. Telephone and telegraph offices in the building. Hotel accommodations will be secured for the members.

Chas. A. Meeker,
Secretary and Treasurer.

GOLDEN ANNIVERSARY.

The dental profession of Philadelphia, represented by all of its organizations, will celebrate, on February 27, 1904, the golden anniversary of the graduation of the class of 1854 of the (old) Philadelphia College of Dental Surgery, by a complimentary banquet to the surviving members of the class, namely: Drs. Louis Jack, James Truman, C. Newlin Peirce, W. Storer How and Eri W. Haines.

The Dental Review sends greetings to the veterans, with the hope that they may live long enough to hold a diamond jubilee.

RECENT PATENTS OF INTEREST TO DENTISTS.

746,804. Means for fixing artificial teeth to dental plates, Leo. E. Evslin and G. Otto, Paris, France.

747,484. Dental dam holder, Erwin S. Rinehart, Anaconda, Montana.

747,978. Top for tooth-powder bottles, cans, or other containers, Henry B. Kent, New Brunswick, N. J.

748,977. Rubber dam clamp, Frederick H. Nies, New York, N. Y.

749,276. Rendering denture-plates, etc., antiseptic, Lucien Eilertsen, Paris, France.

749,624. Dental bur, Piercy B. McCullough, Philadelphia, Pa.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION.

The next annual meeting of the Southern Branch of the National Dental Association will be held in Washington, D. C., February 23rd to 26th, inclusive, in response to invitations extended by the District of Columbia Dental Society and Maryland State Dental Association to meet conjointly with them.

The convention will assemble at the University Hall, which building the Faculty of the Columbia Medical and Dental Schools have unanimously voted to hand over for the use of the association. At this place ample provision has been made for committee rooms, clinics and exhibits. The list of exhibitors is unusually large, affording opportunity to see the newest equipments for office and laboratory, and the latest in therapeutic agents.

The programme will present many interesting features, some of the most distinguished operators in America having consented to be present and contribute to the success of the meeting in the way of clinics and valuable papers.

IN MEMORIAM.

DR. M. B. RIMES.

Resolutions Passed by the Englewood Dental Society.

Through the Providence of God, whose law controls the destiny of man, the career of Dr. M. B. Rimes, an active member of this society, has been brought to a sudden close. He, with his wife and three children, met death at the calamitous Iroquois Theater fire, Dec. 30, 1903.

Dr. Rimes began the practice of his profession in Englewood, March, 1891, after finishing his course in the Chicago College of Dental Surgery. He had a large clientele whose confidence in his ability was amply justified by the results of his efforts. He was jealous for the honor of his profession and was active in promoting its interests. He efficiently served consecutively as Secretary and President of the society, and was active in recruiting its membership among the younger men who come to our locality. His life was consistent with his principles and with his ideals, and he was respected and loved by his associates.

Resolved: That we give to the remaining members of his family an expression of our sympathy in their great bereavement.

Resolved: That a copy of these resolutions be made a part of the records of the society and that copies be mailed to the leading dental journals for publication, and to his family.

T. Elhanan Powell,
W. B. Winget,
H. O. Browning,
Committee.

IN MEMORIAM.

DR. A. J. OAKEY.

Resolutions Passed by the Englewood Dental Society.

Through the will of an All-wise Providence, we are called upon to mourn the loss of one of our most beloved members, who, with his two daughters, met death at the Iroquois Theater fire, Dec. 30, 1903.

Dr. A. J. Oakey began the practice of Dentistry in 1889, having graduated that spring from the Chicago College of Dental Surgery. He served his patients faithfully and well. He made himself honored and respected by the dental profession, was an active member in society work, having helped to organize the Englewood Dental Society, and was one of its early presidents. He later served as secretary for the same society, a term of two years, and since that time has been active and zealous in promoting its interests and elevating the standard of his profession.

Resolved: That in the death of Dr. Oakey, the members of The Englewood Dental Society have suffered an irreparable loss. Through association with him in the past, they had learned to love him as a friend, respect him for his high sense of honor and to look upon him as a consistent Christian man.

Resolved: That an expression of our sympathy and condolence be extended to his bereaved family, especially to his wife, who is so bravely and beautifully facing the inevitable.

Resolved: That a copy of these resolutions be placed upon our records, also that copies be sent to the leading dental journals for publication, and to the family.

T. Elhanan Powell,
W. B. Winget,
H. O. Browning,
Committee.

THE

DENTAL REVIEW.

VOL. XVIII. CHICAGO, MARCH 15, 1904. No. 3

ORIGINAL COMMUNICATIONS.

DENTISTRY; A SPECIALTY IN MEDICINE.*

BY CHAS. P. PRUYN, M.D., D.D.S., CHICAGO, ILL.

For more than half a century there have been few dental gatherings in this country wherein the subject of this evening's discussion has not provoked a lively interest. Since Dr. Chapin A. Harris and his colleagues requested that a department of dentistry be added to the old Baltimore Medical College, men have disputed, pro and con, the claim of dentistry to be called a specialty in medicine, and though every condition and circumstance of dental life has entirely changed since those far-away days, the question is still one on which a unanimity of opinion has not been reached. You are all familiar with the reception given Dr. Harris' request, and you know how rapidly the authorities of the said college unanimously refused to comply therewith. The medical fraternity of that day considered dentistry simply an art, or trade, and those engaged therein simply mechanical artisans or tradesmen, analogous to that of the goldsmith or jeweler, or possibly to that of the barber. Looking back over the years that have intervened since that time and this, and comparing the old methods and operations with those with which we are familiar to-day, can we blame those said medical men for the position they took at that time?

Indeed, I am very grateful to them for the stand they took in refusing the recognition that Dr. Harris requested. You are all familiar with the history of those early days; how Dr. Harris and a few noble souls, feeling the need of especially trained and educated dentists, set about to start a distinct college for the education and better preparation of men to practice dentistry. He saw the needs, and also the possibilities of the dentist of the future. He was a man who lived before his time, and made it possible for us of to-day to take the proud position that we do in ameliorating some of the diseases and pains of our fellow man.

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*Read before the Chicago Dental Society.

Twenty-five or thirty years ago the dentists were generally clamorous for recognition by their medical brethren, and it is interesting reading to go through the files of the dental journals of that time and note how universal was the demand for that recognition which we claimed was our logical right and inheritance as one branch of the great healing art. But, as we have become more highly educated in medicine, we have ceased to clamor for the thing that once seemed so dear to our hearts. At the same time we are enlarging our curriculum constantly, and are not content, as formerly, with teaching only anatomy, physiology, chemistry and a smattering of Materia Medica, but now we are teaching general Materia Medica, general pathology, and etiology, bacteriology and physical diagnosis, psychology, and more and more ologies are added at each recurring college term. If we are not specialists in the great healing art, what in the name of all that is good are we? Can it be that with all this special education and training in the ability to discern, and the power to treat diseases of the oral cavity and surrounding parts, we are still to be classed in the same category with the itinerant tooth tinkers of the early years of the past century, and to be known only as artisans?

I greatly fear that the opposition that comes from some members of our profession to the acceptance of the statement that we are specialists in medicine, is from the groundless fear that if we admit that we are specialists in medicine, there will be no further need of special institutions for dental teaching, and that dental students would then pursue the same course of studies as do the medical students, and in the same institutions.

Now, to my mind, such reasoning is fallacious. After an experience of ten years as a teacher in a dental school, I am of the opinion that the best results come from having an entirely separate school for instruction in dentistry. The reasons for this are very obvious to one who has observed both methods, and noted the results upon the students.

There is so very much in dentistry that depends upon the careful training of the fingers, and the delicate technique required, that should be very early learned in the student course, while at the same time he is receiving instruction in didactic teaching that it has proven quite impossible to secure the same results from a dental department in a medical college. And while the above is true, it does not militate against the dentist becoming a specialist in medicine, but rather emphasizes the fact that the educated dentist of to-day, who is well posted in diagnosis, prognosis, and therapeutics has a well-grounded right to be called a specialist in medicine. If, however, the thought and intent of the gentleman who introduced this motion is that by adopting the resolution, we should do away with dental college teaching, and require all students who intend to practice dentistry to first obtain the M. D. degree, I shall most strenuously oppose it.

For, however desirable it may be for one to have such a degree, it is not at all positively necessary, although it is a very valuable adjunct. The same thing might be said about several other of the sciences. Now, while I make a strong plea for the broadest kind of an education for the dentist, I realize that it is very seldom that the student has either the time, the inclination, or the money to undergo such a prolonged period of preparation before engaging upon his life's work. The present curriculum in most all of our best dental colleges to-day is sufficiently broad and comprehensive to fit the students for the full and complete practice of dentistry and to be in very truth a specialist in medicine without the added M. D. degree. I fully realize, however, the natural dwarfing tendency of all specialists to the great world of truth lying just outside of their special domain, and the great desirability of first obtaining just as broad a general medical education as it is possible and practical to do.

It is my understanding that the courts of this country have decided that the medical practitioner is one who prescribes and uses drugs and medicines for alleviating the ills of mankind; most all of the states of the Union require that evidence be presented to show the ability of the practitioner to successfully treat diseases, and then issue a license to that effect, and it seems to me that the judiciary of this great country is quite competent to say who shall and who shall not be practitioners.

The tendency of the present time is towards specialism in all professions, as well as trades. How often we see professional cards and signs reading: "Practice limited to"—such and such diseases! Would it be unprofessional to see the sign upon a man's door, reading: "Practice limited to diseases of the teeth and surrounding parts?"

Would not such a sign indicate that the practitioner was a specialist in that particular branch of the science of medicine?

You know very well that the time was, when the surgeon was not considered a specialist in medicine, because he used the knife and chisel, and was in one sense a mechanic, and used mechanical methods and appliances in his art. And now are we any the less specialists in medicine because we also use the knife and chisel, and mechanical appliances in our art, as well as drugs and medicines?

Gentlemen, it seems to me that there can be only one answer to these statements and interrogations regarding the position that we should assume before the world. Why should we be strenuous about the study of the whole anatomy of man, and physiology, and Materia Medica, and pathology, and therapeutics, and chemistry, and all the other fundamentals of medicine, if we are not to be medical men and do not intend to use such knowledge in our life work? And now, when the olive branch of peace is extended to us from the mother-parent to come under her wing, and be known as one of her children, would it not be the height of folly to stand back upon our dignity and refuse her overtures?

By training and hard study we have the equipment of medical men. We cannot escape the classification which is the result of our acquirements, and it seems a very shortsighted policy which would refuse to acknowledge a fact so fully established by the circumstances of our professional life. To acknowledge that dentistry is a specialty of medicine seems to me the only really sane position to be taken on the subject.

DENTISTRY A SEPARATE PROFESSION.*

A Negative Presentation of the Resolution: Resolved, That Dentistry Is and Should Be Regarded as a Specialty of Medicine.

By W. H. G. Logan, M.D., D.D.S., Chicago, Ill.

The history of the resolution, as understood by the essayist, is as follows:

Dr. Wm. A. Evans, president of the Chicago Medical Society, became enthused with the idea that if the medical and dental bodies were brought in closer harmony, an immediate and lasting benefit would be the result to both professions.

So accordingly he counseled with members of this society and asked them to present the resolution that we are now considering to the Chicago Dental Society, that he might get a consensus of opinion of its members upon the subject under discussion, and in the instance that it received a favorable vote by this body, Dr. Evans desired to place the same resolution before the Chicago Medical Society; but he was advised by our members with whom he discussed the subject that it would be a wiser plan to have the resolution favorably considered by the medical fraternity first.

In accordance with this, a resolution was presented before the Chicago Medical Society and favorably considered, although there was opposition to its passage. However, through the courtesy of this opposition, the final record stands as unanimously for the resolution, and in that vote the Chicago Medical Society unquestionably felt that she was extending a merited compliment to dentists. For this action I, for one, would be pleased to have passed by this Society a vote of thanks to the Chicago Medical Society and to its president, Dr. Wm. A. Evans, for the hand of brotherhood that they have so unanimously extended to us:

I am in favor of this, not because I believe dentistry could be aided by this affiliation, but because I am sure, in the passage of this resolution, the Chicago Medical Society had our interests and future welfare at heart. Therefore, let not praise be withheld, since good motives prompted the action, even though you cannot agree with their conclusions. Medicine here has nothing to gain and nothing to lose. Her reputation and fame are beyond that. So do not allow your sympathy to be aroused to the point of mourning for the future of medicine, even if we are not of the same opinion as to the status of the dentist, but instead lend us all your thought as to what will be for the best in the future for dentistry.

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*Read before the Chicago Dental Society.

What nobler theme is then to engage our time; not what will be best for you or for me, but what would be best in the future for the preservation of the dental organs, is the important question. For I believe you will agree with me that the dentist has but one great mission to perform in his professional career, which is the prolongation of the usefulness of the teeth. If the advocates of the affirmative can show where or how this change from a distinct profession to a specialty of medicine will increase the dentist's knowledge of dentistry and add to the liability of the better preservation of the teeth, I will then join hands with those who favor the resolution, and if I can prove to you that such knowledge and ability will not be augmented by the dental profession giving up its individuality, I ask you to join me in affirming that dentistry is a noble and distinct profession.

Under the ultimate benefits to be derived by the passage of the resolution for the dentist it has been suggested to me an increased latitude in the administration of general anaesthetics and drugs having systemic action, this to be brought about by the added protection of the medical law. An advocate of the affirmative informs me that if a dentist gives a general anaesthetic and his patient dies, with but the dental law for his protection he could and would be convicted of malpractice. And I have been further enlightened that if we change dentistry from a distinct profession to a specialty of medicine, the same dental practitioner can then with impunity produce general anaesthesia and rest assured that the law governing medicine and all its specialties would protect him from conviction from malpractice in case of his patient's death.

Admitting that which is not true for the sake of argument, that every dentist known as a medical specialist would be as free from censure in case of accident as any M. D., I consider it well to discuss how exempt is the physician from prosecution if, during his administration of an anaesthetic, the patient dies. I doubt if there are many members of this society who have not known of some medical friend having a malpractice suit being filed against him from this very cause. You are also aware if the physician can prove that the necessary physical examination was made, in case he possessed the ordinary knowledge of the ordinary practitioner in that location upon the administration of anaesthetics and used the correct antidotes, he went free. But in the instance he neglected to take these precautions, or not having the average knowledge that pertains to the administration of anaesthetics, he was convicted of malpractice, regardless of the medical law or that he possessed a license to engage in all the specialties of medicine. And so it has been with the dentist in the past. In case of a fatal accident from an anaesthetic, if the dentist could prove that he possessed the knowledge necessary for the ordinary physical examination, exhibited the average ability in its use, employed the antidotes customarily given, he, like the physician who had the necessary knowledge, receives a verdict: not guilty of malpractice. If he does not possess the stated ordinary knowledge, he is rightfully convicted.

In passing I desire to state that all recent graduates of our best dental colleges are in possession of such knowledge as we have just been discussing, and what has been said of the dentist's legal right to administer anaesthetics holds true in the giving of systemic drugs, if their action is to benefit the condition of the dental field.

II.

A consideration of the evils that would befall the profession of Dentistry if the resolution be adopted.

If the resolution is favorably considered by this city, State and National associations, we will then have a state of affairs similar to those found in Scotland and France, for in those countries the dental practitioner is a specialist of medicine, while the law governing the license to practice dentistry in Scotland is as follows:

"No special or partial diploma is there given by the Royal

College of Surgeons or other licensing body, while diseases of the teeth and adjacent structures are understood to be made subjects of lecture and examination in the same manner as other original or special diseases occurring in the practice of medicine or surgery." So the graduate of the Royal College of Surgeons of Scotland can become a general practitioner of medicine or engage in any of the specialties; and since diseases of the teeth are taught in the regular medical course in various European countries, it makes all the medical graduates thus educated legal practitioners of dentistry, and it also creates dentistry in those countries a specialty of medicine, for the reason that the dentist is required to take a full medical course before he can engage in the care of the human teeth; and at the termination of this course he has received his M. D. A dentist so educated can logically be called a medical specialist, but when a man has never been a medical student and does not possess the M. D., by what reason can you call him a specialist of medicine? You say because he has taken some of the medical studies in the dental college; and I say from the same reasoning that you might as well decide that a student in dentistry in his junior year should be called a Doctor of Dental Surgery, because, has he not taken a part of the course demanded in the dental college?

The law that governs the educational policies of dentistry in America is vested in the city, state and national bodies. Particularly is this true of the National Faculties and Examiners' Association. They decide the length and number of the terms the student must engage in the study and the examinations the graduate must pass to secure his diploma. They decide what studies the medical graduate must pursue in the dental college before he can secure his D. D. S. degree, which now is three years.

So in passing this resolution in this society and in the national societies of which I have spoken we establish a law; and the favorable action before this society would make a similar action before other societies an easy matter indeed.

To make the statement more clear, if the National Dental Faculties and Examiners' Association pass favorably upon this resolution, it establishes said resolution as a law beyond dispute that would establish dentistry as a specialty of medicine, thereby creating a condition of affairs that could not result otherwise than detrimental to the care and preservation of the teeth.

First, if dentistry is created a specialty of medicine, what will prevent the medical graduate from practicing any of the specialties of medicine? He may choose the nose and throat, the eye or ear or that specialty of medicine known as dentistry, for is it not a recognized fact that a person upon whom an M. D. has been conferred and who possesses a license to practice, can choose any specialty that is defined as a department of medicine?

The second condition that would arise is one that would be brought about to overcome the baneful effect of the first. The medical colleges of America would then follow the plan as outlined by the condition found in Scotland, where they have added a special course of lectures upon diseases of the teeth and adjacent structures, and rightfully should the American medical colleges pursue this course. So the medical graduate of the future would be somewhat better equipped if he chose to follow dentistry as his specialty while engaging in the practice of medicine.

The third result is enough, to my mind, to prevent every dentist from supporting this resolution. The medical practitioner who would be most liable to engage in this new medical specialty is the one who has not made a full success. Our calling would attract only the most ignorant of the medical profession; for the one who is succeeding does not desire a change. And because of the known ignorance of the physician on questions that deal with dental lesions and his untrained hand, I do not feel called upon to describe the character of the dental operations such a man would perform; suffice it to say that it could not result otherwise than in an uncalled for sacrifice of many useful dental organs. Let nothing be misconstrued from what has been said that I do not respect and admire as much as any man the extensive and exact knowledge of the physician when he engages in the specialties that are in fact a part of medicine.

A statement of the reasons why the dentists of to-day should continue along the path that has been trod by their distinguished professional brothers of the past.

If a man is to expand and construct to noble ends, let him not sit in the shadow of the radiance cast by the acts of a great man forever, for in its brilliancy he will be lost from the public's eye and in time be so gloried over he loses courage, and with courage lost man's efficiency to his country, to his home, to his profession fails. What is true of man is true of men; what is true of men is true of a profession.

Let dentistry not sit beneath the brilliant rays cast by medicine, for fear she lose the courage she has gained from the victories she has known since her birth. In the battle for existence that she has fought unaided by the helping hand of the medical profession, she has caused the laity to look upon her as a worthy profession.

Let us not change our name. Let us not be unmindful of our inheritance. Erase not from the roll of fame and parentage of dentistry the names of Harris, Hayden, Townsend, McKellops, Cushing, Miller, Taft, Black and our beloved Barrett and inscribe instead the word Medicine. No, no! Shame even the thought.

But we are told dentistry would gain materially by a change of environment. We have been invited to consolidate the National, State and City societies. Would not this society lose some of its efficiency if we were to listen to medical and surgical subjects instead of dental? And what would be the number of the medical attendance if in that consolidated body we discussed at length the gold filling versus the inlay? And are not these important factors to dentistry?

Transplant a flower to new environments if you have many of its kind to choose from. But disturb not the soil about the tap root of a sturdy oak if perchance it be the only one of its absolute species.

In your mind you ask, what would I have dentistry do and how known? I would have dentistry press on, presenting a solid front with the three other great professions—theology, medicine and law—not one behind the other as a specialty or a section of the other, but each of the four great professions taking its orders from its own intellectual generals and vying one with the other in keeping step with the onward march of science; each profession giving to the other without jealousy any thought that they could use which would ultimately benefit mankind and decrease the amount of human suffering, thus allowing dentistry to remain in her present position and to be known as a distinct and noble profession.

SOME DANGERS IN DENTISTRY.*

By R. C. Brophy, M.D., D.D.S., Chicago, Ill.

First of all you will note that my title reads some dangers in dentistry. I do not say, the dangers, for I know that it is impossible to cover this entire field on this occasion. There are too many obstructions forever threatening the safety and well-being of our profession for any man, within the scope of a short paper, to direct attention to them all. I shall refer to but three dangers, and of these three, one, at least, it will be noted, forestalls actual professional experience altogether, and is purely fundamental in application to professional matters. This one fundamental danger is the first that I would mention because it in my opinion is of greatest moment bearing upon professional success. It is one involved in that important question which comes to all young men—the question of life's vocation.

How often are we confronted by evidence of unfortunate, grievous mistakes made in the resolution to take up dentistry as a life's work? A faulty conception of the requirements of dentistry as a profession is so glaringly shown in our professional student ranks. So many young men enter upon the study of our profession who are lacking in some, oftentimes many, of the natural attributes, important, if not absolutely essential to the attainment of success as dentists, and to the attainment of a creditable position in the professional world. It is a matter of statistics that 20 per cent of dental college graduates do not follow the practice of dentistry. When brought face to face with the realities of actual practice they begin to realize, perhaps for the first time, that which they should have known at the outset, that they have made a mistake.

The college is oftentimes blamed for receiving and graduating men who fail to succeed in practice, and, while, undoubtedly, in occasional cases such blame is warranted, yet, as a rule the college management has no means of measuring the applicant's capacity and ability to master and do credit to the work he is assuming.

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*Read before the Minnesota State Dental Association, Minneapolis, 1903.

The qualification of the applicant for matriculation may be all that is desired, but time often discloses evidence of utter incapacity, or perhaps of an individuality which precludes all possibility of the profession being otherwise than injured by such recruit.

A very large percentage of dental students engage in the study of dentistry by advice of, or, as the direct protege of, a dentist. Right at home then, within our profession can best be exerted the safeguards against this first danger.

Let us study well the aspirant for place in our professional ranks who relies upon our judgment and advice for guidance, and determine to our own complete satisfaction whether there is that within him, in a broad, comprehensive sense, which gives reasonable assurance of success in the calling, before we lend our influence to induce him to take it up; and, should doubt prevail no greater kindness can be done the aspirant, and no greater good done our profession than to frankly put forth effort to turn the tide of endeavor into a more propitious channel.

Having completed the prescribed college course and obtained the credential which permits him to engage in practice, it is then that the young dentist comes face to face with a multitude of dangers. This is the crucial period in his professional life; it is then that is laid the foundation of professional habit; it is then that development begins of professional individuality.

At this period the predominant danger, and the one I would place second, is that of cessation of effort to still further cultivate and improve the professional intellect by reading and study. A disposition on the part of the dental graduate to abandon habits of application to mental exercise and cultivation as soon as the final examinations are passed, is most ordinarily the case.

It is unnecessary for me to dwell upon the bearing of this upon professional success, and upon the upbuilding and advancement of the credit of our profession. I am sure you will all agree with me, gentlemen, in the assertion that no young man can do himself credit, nor do his profession honor, who abandons the habit of industry in reading and study when his days of college pupilage are over. The days of the young dentist's pupilage should not thus summarily cease; they must continue indefinitely if the good which may be in him shall be developed, and if his own, and the profession's, and humanity's interests, all, shall be best conserved.

I am impressed by another danger—my third, and the last danger which will be referred to in this paper—which confronts the young dentist.

It is that of failing to appreciate the desirability, from a standpoint of education, of intermingling with his fellow professional men.

If it be an error to forego reading and study, and if danger lies therein, equally is it dangerous for the dentist to depreciate the importance of liberal intercourse with his brother dentists.

It is a most unfavorable indication of future attainments of the young dentist to see him assume a reserved, exclusive, unfraternal disposition; a segregating of himself from contact with other dentists, and the consequent prevention of the application of those developing and broadening influences which come from fraternal intercourse.

Lost to the dental world, sharing in no way in joint interest with others in matters pertaining to the profession, rightfully of mutual concern.

The world is replete with such dentists; men who live and finally die without having interested themselves in the profession outside of their own narrow walk, to the extent of cultivating even the acquaintance of their professional neighbors.

This is a danger, gentlemen, which I wish I might be allowed to preach to every young dentist. I know it would do them good. I know it would do our profession good. It would, generally, broaden our professional intellectuality, and would markedly raise the standard of our service to humanity.

It would make us as a great family feel that there is much more in life than hours and days and months and years of selfish, purely personal endeavor.

PRESSURE ANAESTHESIA.*

By R. B. Tuller, D.D.S., Chicago, Ill.

Mr. President and Gentlemen—Pressure anæsthesia is a term applied to a process of forcing a fluid medicament into tooth structure that will produce an anæsthetic or obtunded condition. Since some claim that this anæsthetic or benumbed condition can be produced by the use of pure water, one might conclude, if that be true, that the benumbing was produced by the pressure per se, and not by any particular virtue in the liquid. The term pressure anæsthesia, in that case, might be correct; and possibly it may be correct in any event, since the condition of anæsthesia is due to the pressure as well as the influence of the drug, as in the pressing in of a cocaine solution. I have never attempted to produce anæsthetic results with water alone, because I reason that if water will produce such results, we may more certainly insure results by the introduction of cocaine with the water.

I am inclined to use the term *pressure cataphoresis* and have used it to some extent. Cataphoresis is an infiltration of the tissues from the external to the internal, and is cataphoresis, I take it, whether produced by the electric current or by pressure. We are apt to associate cataphoresis with electricity simply because our familiar acquaintance with the term came with its introduction into dentistry with the electric current.

I am quite willing to admit that I know but little about it, and hence do not presume to set myself as an authority when I use the term pressure cataphoresis, and am willing to be corrected if I am wrong.

What I wish to discuss this evening are the results produced by forcing certain medicaments or drugs in liquid form, such as cocaine solution, into tooth tissue; or, to be more exact, into and through the dentine and into the pulp.

When or how this so-called pressure anæsthesia came to be introduced into dentistry or who the discoverer was I do not know. It seemed to follow electric cataphoresis, or possibly came in soon after that came, as a competitor. As nearly as I can find out, it came to the notice of dentists by being introduced from office to office as a secret which brought a pretty good sized fee; the purchaser of the process being pledged to keep it a secret. I have never read or heard a scientific discussion of the process.

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*Read before the Odontographic Society, May 18, 1903.

That it has merit I think no one can doubt. That it is not more widely practiced I think is due to a great majority of dentists not understanding either the technique of the operation or the theory of its action. Many cannot understand, and hesitate to believe, that a liquid substance can be forced into the hard dentine of a tooth, and even through it to the pulp. But that it can be done has been proved over and over by many, who are now using the method frequently to free their patients of the pain incident to excavating and filling sensitive teeth and the removal of exposed pulps. Other "doubting Thomases" will unhesitatingly declare that no one can press on an exposed live pulp without producing pain, and when I state openly, as I do to-night, that I have done it over and over without one twinge of pain, I expect to hear doubts expressed.

My first attempts at pressure anæsthesia were failures, and my inclination was to pronounce it all a fake. At length, in a favorable case, I very unexpectedly succeeded, and so perfectly that I was charmed, as was also my patient. Then I tried to reason out why I had failed so many times, and at the same time I perhaps got a hint that my medicament must be most securely confined under the pressure; and, gentlemen, that is the whole secret. Some of you know that, and I presume some do not, or at least do not comprehend. I found many cavities which had to be patched up with cement or modeling compound or some such thing, to make a pocket or well with walls that would not leak. This often took a lot of time, and when at length pressure was applied with soft rubber over the saturated cotton in the cavity, and no desired results reached and time again wasted, I often found the hour allotted to the sitting was up, or so nearly so that I could not do what I had intended, and I had to send my patient away rather disgusted and lacking faith in me, as I then lacked faith in the painless process I had attempted.

Still I met with success enough in some cases to feel that the method was all right if I could make more of the conditions good. I have not made them all good by any means, by my method, but I have made many of them good.

I will say that in a reasonably deep, cup-shaped cavity, with good, unfissured walls, you need not seek anything better than the plug of soft rubber behind your saturated cotton, if the plug is made to fit the opening and a suitably shaped and large enough instrument is used so that the liquid, secure from leaking otherwise, does not regurgitate. In such a cavity, with certainty of confinement, I do not think any one should fail, if he persist long enough in the effort and exert a force strong enough.

But we find, as I have said, many cavities so shaped that we cannot confine liquid in them any more than you can on the top of a ten-cent piece. With many such cavities to contend with, the thought came to me to try and confine my solution without regard to faulty walls or any kind of tooth walls. I fashioned a cup in a soft piece of rubber, and fastening this to an instrument to press it down with, I put my cocaine solution in the cup, and applying it, met with very quick and satisfying results. This, however, was in a case of pulp exposure. The little rubber cup was placed over the exposure very gently and held a moment before beginning pressure. The exposed surface of a pulp will take up a little cocaine and become so benumbed that it will tolerate a little pressure, which may be gradually increased until one may be pressing with a force of many pounds. This should be kept constant for a little while; and to make assurance doubly sure, I repeat the dose of cocaine and send it home. If all conditions are good, the pulp may be removed painlessly in five minutes. If conditions are faulty it may take longer. I have failed for a matter of ten or fifteen minutes in some cases, and even longer, and then came out successful. So success depends, to some extent, upon persistency, as the fault that requires it cannot always be determined and corrected.

Sometimes a rubber tip may split and leak. They should be carefully and frequently inspected and fresh ones substituted.

Now I labored under a delusion that I believe many others labor under, and that is that in obtunding sensitive dentine the obtunding agent must be in contact with the walls of the entire cavity or one could not hope for results; but on a hint from

Dr. G. V. Black, I proved to myself that such is not the case, for on placing my little cup of cocaine solution on the bottom of a broad cavity immediately over the pulp chamber, I soon got obtunded results, not only just where I pressed, but in the entire cavity; and this led me to the conclusion that my solution passed through the dental tubuli to the pulp, which becoming influenced, influenced in the same way all the nerve fibrils or prolongations of odontoblasts that radiate from it, so that excavating in any part of the tooth was a painless operation.

Of course it is apparent to every one that when such a condition is brought about in a tooth, the greatest care must be taken to not accidentally uncover the pulp or injure it by the too persistent friction of rapidly revolving burs. If an operator does not feel safe in his ability not to uncover a benumbed pulp, he had better not anæsthetize it, and in fact, as I have said, I do not advocate the use of the method in a multitude of cases where we can do very well without it.

But there are again a multitude of cases where it is a boon both to the dentist and his patients. You are to be your own judges about that. Although I have no data to go by but my own experience and hearsay evidence in the matter, I am satisfied that no pulp is injured by the slight influence necessary to produce thoroughly obtunded results. Neither do I believe that with the minute quantity I use, we are in much, if any, danger of toxic effects through cocaine in the circulatory system. I have never heard of any trouble of the kind, not even when we infiltrate a pulp to the apex for immediate extirpation. We might say we take the pulp out too quickly, but to put another phase on that, I will say I have anæsthetized an exposed and aching pulp, and then not having time to do more have packed the cavity with gutta percha hard pressed on to the exposure, leaving it for a more convenient time (24 to 48 hours) to extirpate and have had no occurrence of pain or unpleasant results. I am not prepared to say that this is good practice, but several cases have turned out well—no pain in the interval of waiting and none in removal of pulp when it suited my convenience to do it, except one case that was a trifle sensitive near the apex.

I cannot leave this subject without relating one incident of practice which must speak for itself. A few weeks ago I had occasion to devitalize, or, rather, remove the pulps of some eight or nine teeth for bridge supports, the case being one of serious mal-occlusion that could only be regulated by cutting off sound teeth in both upper and lower jaws and adjusting bridges. The patient asked me if I could do the work painlessly, knowing something of my work in pressure anæsthesia, and having dreaded an operation he knew was inevitable if he wished to avoid a plate and get any use of his mal-occluding teeth.

I told him I believed I could do it if any one could, but as there were no cavities to work in with my cocaine and pressure, I would have to make cavities, and that might be a little painful. I set to work and penetrated each tooth at the most available point, making a very small hole, not larger than a small bur. At the first show of sensitivity I desisted, and filling the opening in both the tooth and my rubber tip with the cocaine solution, I covered the opening and exerted considerable pressure at once. Now by holding long enough under hard, continuous pressure, one can almost invariably reach the pulp with the medicament in one effort, but I find it easier to relax and perhaps drill a little deeper (if I want to get ultimately into the pulp chamber) and then repeat the dose of cocaine. I repeated in this case perhaps twice before reaching the pulp chamber, which I reached and entered without pain. Then to make certain that my pulp was anæsthetized to the apex, I prolonged my pressure treatment until I felt satisfied.

This was the procedure in each case of six teeth—incisors and bicuspids. I also cut off four elongated lower incisors and a cuspid by grinding, until I struck sensitive dentine, and then forcing cocaine in, finished the grinding without pain. From one lower incisor I had to remove the pulp, exposed, without pain, by grinding. All the work described, the removal of pulps of six teeth and placing dressings, and grinding off the lower ones, was done in one and one-half hours. When ready to dismiss my patient I asked him to tell me how severely he had been hurt. He said that with the exception of the getting through the enamel, which was only suggestive of pain, the whole thing was no more painful than paring his nails. By any other process known to me I would have produced more pain than in the procedure, and would have had from four to six sittings of an hour or more each. The gentleman—a very busy man—appreciated the saving of time, as well as saving pain.

Now the method of performing this operation suggested to me a way to handle many cases that I believe we may be justified in doing. The rubber tips I have referred to are not available for all kinds and conditions of cavities, nor can they be made so and be effective. Again, many cavities are obscure and in position and condition to be very painful in opening them so as to begin to use the pressure method. I find often another defective spot at a more available position of the tooth; as, for instance, a little shallow cavity at the cervix, and I utilize that. Many of these cervical cavities that are usually so sensitive may be thoroughly obtunded, even though the rubber tip covers but a portion of it, providing it is shallow enough to allow the tip to fit so as to confine the solution. The rubber readily fits quite a diversity of inequalities.

If I cannot find a defect through which to make an opening, I feel justified in many cases, as I say, with the consent of my patient, to make an opening through sound tissue, selecting the place with judgment, and of course repairing the damage, as we would a decayed spot, by filling later. With such an opening you can so obtund your tooth as to be able to open into and excavate your cavity of decay without pain, bearing in mind always that you have no sensitivity to warn you of trespassing upon dangerous ground.

Now I do not want to be understood as advising such a procedure as a common practice, nor in fact advising the pressure method in many cases where we can do without it. Each operator must decide for himself. If he wants to use the method I have devised, he may have an instrument at hand quite as convenient to pick up and go to work with as picking up a plugger, and one to be used at any stage of the cutting and preparing, if conditions will admit at all of its use. A little time spent in obtunding often saves time in the facility with which one can work afterward.

There are few medicaments that will infiltrate either dentine or pulp in any reasonable time, by simply lying in contact with it.

LOCAL ANAESTHETICS.*

By L. O. Green, D.D.S., Chicago, Ill.

The subject of local anæsthetics affords a vast field for investigation. Bear in mind, we are not speaking of local anæsthesia, but of local anæsthetics. The day of local anæsthetics is at hand, and there are more used at the present time than ever before, and the demand is growing with great rapidity. Men who would never use a local anæsthetic and condemned it in the past are using a great deal of it now.

The fact that there are a great number of anæsthetics on the market for the production of local anæsthesia should be sufficient to call the attention of every thoughtful member of our profession, as well as the medical profession, to that phase of the subject which calls for investigation. While it is not my purpose to condemn any local anæsthetic, I am in duty bound, as a member of the noble profession of dentistry, to condemn the laxity of not a few, but of many of both the medical and dental professions in taking and accepting as truthful, without investigation, statements made in relation to pharmaceutical products in general. Any medicinal product launched on the market, not accompanied by the formula giving the constituent elements of which it is composed, to say nothing of the ethical phase of the subject, should be relegated to the city garbage pile.

This may seem like a digression from the subject selected for this paper, but the formula question applies with greater force to local anæsthetics than to other products in general, because they are to be used, as a rule, hypodermically. If formulæ are given and we are informed on drug action, we can come to some rational conclusion as to the therapeutic value of the product. If no formula is given, and you use the product, you are acting as a mere machine, doing so and so because somebody told you to do it, having no knowledge of what you are using, and being uncertain of results. Again, some of the local anæsthetics, while the ingredients may be all right, the proper quantities of each are disproportioned. For example, some have too much carbolic acid. In two local anæsthetics tested the amount of carbolic acid was so great that it is no wonder that many cases of sloughing have been reported. The mere touching of the tongue gives that pungent, disagreeable taste of carbolic acid in them. Never allow yourself to be influenced to use any anæsthetic whose formula is not given. Antiseptic properties are of first importance. Any person can make a local anæsthetic, but it is not so easy to make a perfect antiseptic solution which, at the same time, is anæsthetic only to the extent of perfect safety when used hypodermically.

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*Read before the Odontographic Society of Chicago, May, 1903.

Right here, with your permission, I will quote the experience of a dentist using a local anæsthetic manufactured by a prominent firm. The article will greatly strengthen my previous remarks, "Why one should be positive when using a local anæsthetic that he has one free from imperfections."

The doctor says (from The Dental Brief): "Some time ago I purchased a local anæsthetic put on the market by a prominent firm. The formula was printed on the label of the bottle. My first patient happened to be a lady of very delicate mould; she wished the six inferior anterior teeth removed. I injected around the entire six at once; immediately the tissues shriveled and looked cooked in a moment. The lady fainted. I immediately extracted her teeth, and proceeded to administer aromatic spirits of ammonia and whisky. She revived soon and was able to leave the office, but for the next week was confined to her bed. Her tongue became enormously swollen; the gums sloughed from around the alveoli. When first called, I ordered calomel as a purge, and for diet, all the hot milk she could be induced to swallow. When she came to the office I cut away all the exposed alveoli; her gums then healed nicely, and in four weeks from the time I extracted the teeth she was wearing a plate. Thinking that possibly this sloughing was due to the systemic condition of my patient, I gave the anæsthetic another trial, this time on a male patient, for whom I extracted two teeth, an upper molar and a lower bicuspid. The gums sloughed and I had used the medicine carefully. I excised the alveolar margin before I could get new granulation. It is unnecessary to say that I threw the remainder of that anæsthetic in the waste pile.

"I had the case of a man, about forty-five years of age, who wanted two very loose teeth removed. After injecting a very few drops of a 1 per cent solution, and removing the teeth, he said he felt a little queer, sat in the reception room a few minutes, and asked me to feel his pulse. His pulse was forty beats per minute. He remained a little while, and his pulse remained the same. He had not the appearance of good health. I was and am of the opinion that the solution had nothing to do with the pulse.

"In another case, the patient, a woman, became semi-conscious after the injection. She was placed in the horizontal position, and was apparently in a state of collapse, looking like a corpse. Suddenly she got up on her feet, her eyes bright, her cheeks full and rosy—the change was so sudden it seemed like magic. I had been just on the point of injecting ether hypodermically. If I had done so, I surely would have thought the ether had done the work."

The effects above related have not been confined to cocaine. I have had certain of the results from eucaine and nervinine; also chloretone and eucaine combined. Chloretone I have not found to be of much value as a local anæsthetic, but as an analgesic and hypnotic it is valuable.

One would naturally think the doctor, who had such results, would give up the use of local anæsthetics, but I am glad to say that there are good anæsthetics on the market to-day that give all the desired results without any of the undesirable conditions arising.

Suppose we have a local anæsthetic which we know to be all right, so far as antiseptic and anæsthetic conditions are concerned, and yet because of the susceptibility or peculiar idiosyncrasy of the individual, there might be some danger of toxic effects. Are we not called upon in our everyday practice to administer drugs which are deadly poisons? And is it not a fact that we are sufficiently educated in materia medica to cope with any dangerous symptoms that might arise? I admit, occasionally, we are brought in contact with a patient whose physical condition is such that indications are against using any anæsthetic whatever. Granting this to be so, should we refrain from using so valuable a product as cocaine in combination with other drugs to produce analgesic conditions? No; by all means, no; but we should be able to discriminate where and when to use it. Right here I want to emphasize the fact that I hope the time is not far distant when the dental colleges will incorporate in their curriculum the proper technique in the use of a local anæsthetic, also the proper use and care of a hypodermic syringe. It would take very little time and would benefit the student wonderfully; then he could go forth and teach his patients that there need be no more dread of the dental chair, and just so soon as your patients discover that you are not an old-time heroic operator, and, at the same time, do good work, you will have all the business you can attend to. In my own practice I use a local anæsthetic for practically all of my operations, such as the immediate removal of a vital pulp by the pressure method, using Dr. R. B. Tuller's instrument for this purpose; extraction of teeth; filling and separation of teeth; treatment of pyorrhea; fitting of bands to bad and broken-down roots, and for the taking of impressions. For two years I have used no other treatment for anterior teeth where I have extracted the pulp; having the pulp chamber perfectly dry, a small rope of cotton, saturated in the anæsthetic, and carrying it into the root canal and sealing the opening. I then have not only a non-irritating antiseptic treatment, but a sedative and hemostatic, and a translucent liquid, with all the antiseptic powers of the essential oils which will not discolor teeth as will arsenic, and the ordinary treatment. In fact, there is no limit for the use of a local anæsthetic, provided, of course, one has the proper combination.

A local anæsthetic is not complete unless there are ingredients incorporated in its formula which have powers other than analgesic.

My ideal for a formula would be one which would contain anæsthetics, antiseptics, sedatives, hemostatics, and stimulants. I am confident the main reason so many dentists have become disgusted with local anæsthetics is the fact that in the past we have been in the habit of taking up with almost any solution that was presented to us without sufficient consideration and investigation as to the virtue of the article employed, and many times when we happened to have the right anæsthetic, the so-called toxic effects and sloughing which followed were nothing more than criminal neglect on the part of the operator—not always, but very nearly always. When we employ a local anæsthetic and hypodermic to assist us, the first step toward a successful operation is oral asepsis. It is absolutely essential to have everything connected with any operation upon the teeth in an aseptic condition. I am sorry to say that many are extremely lax in this respect and they wonder why sloughing and all sorts of complications follow the mere extraction of a tooth; and to those who are inclined to be careless I want to say, pursue closely the requirements governing surgical asepsis, and you will rarely if ever have trouble. In watching some operators I am not surprised that they inoculate their patient. Many times a patient presents a mouth that is filthy in the extreme; without the slightest pretense of removing the deposits about the tooth involved, or sterilizing the parts, the operator proceeds to extract the offending tooth, and what is the result? When the needle is forced into the tissue, infection is carried along to the dense tissue and, nine times out of ten, these structures are inoculated with pyogenic and other micro-organisms. In addition to this, the beaks of the forceps crush the calculus which is carried into the tissue, and again you have infection. I often wonder that we do not have more of such cases than we do. At the same time there are serious cases that are hushed up and kept from our knowledge. I am sure it would be much better for everyone concerned if the operator would consult more with his brother practitioner, and in this way he would learn how to obviate the repetition of such disastrous results. We all make mistakes and by them do we learn. One should not bury himself under a bushel basket and expect to become proficient. Join all the dental societies you can reach. Read the dental literature and consult much. In this way you will find that the once difficult operations become easy.

Just a word in regard to the care of the socket and surrounding area after extraction. I believe that I am safe in saying that the majority of cases receive no further attention after the tooth is removed. What if a surgeon were to perform a surgical operation, and dismiss the patient without further thought of the case? It would not be very long before he would be arrested for malpractice—and justly so—and so I say when a dentist has extracted a tooth he should be just as particular to sterilize the socket, cut away all shreds of tissue and see the case a time or two, until he is positive as to the aseptic conditions. This holds good in all cases of extraction. It matters not if the tooth has been removed with a local, general, or no anæsthetic at all.

A word in regard to the mode of injecting. Have the parts where you intend to inject perfectly clean and dry, with a roll of absorbent cotton surrounding this area for the purpose of absorbing any overflow from whatever drug you may use. A small drop of 95 per cent c. p. carbolic acid is placed at the point where the needle is to be inserted. Allow the carbolic to remain about one minute. Then dry the part and gently force the point of needle, slowly and obliquely, toward the apex of the tooth to be extracted. Never force the needle through the periosteum. About half way is sufficient; inject slowly and allow the needle to remain in about thirty seconds, in order to give the liquid time to diffuse through the tissue, otherwise the anæsthetic will follow the needle when withdrawn, and you will fail to get the desired anæsthetic results. Always dip point of needle in 95 per cent carbolic acid before and after using. The positive and confident way in which one approaches his patient has much to do with the success of the operation. The patient is frightened to begin with, and if the operator exhibits any nervousness the patient is sure to detect it. In such a case you are quite liable to have a so-called toxic condition. Even though you see the symptoms of fainting, do not let on to the patient. If you do, they will faint sure. What if they do faint? Did you ever have a patient faint when nothing was used? This is nothing more than we can expect, as I know of no operation which patients so dread. I cannot understand why a dentist in this day and age will allow himself to be persuaded against his better judgment to employ a general anæsthetic, such as chloroform, for the mere extraction of a tooth or two. Take, for instance, that case in Austin last summer. A patient died in the dental chair from chloroform, just for the extraction of one tooth. We can fully appreciate the dentist's feelings, in whose chair she died; probably he would have been much happier had he taken less risk and used a local anæsthetic. One of the gentlemen who talked on nitrous oxide the other evening, before the Chicago Dental Society, was inclined to condemn local anæsthetics, on the whole, and yet he admitted that his experience was extremely limited in their use. I cannot understand why a man should practically condemn anything that he is not familiar with. I have been extracting teeth for fourteen years, and about ten years ago I procured a position in a large dental office which kept several chairs busy; I wanted particularly lots of experience in extraction, so I was made the extractor of the office and for two years did practically nothing else, and had all I could do at that. This is how I received my experience with nitrous oxide, as nothing else was used in that office. I gained a great deal of valuable experience and am perfectly familiar with the manufacture of nitrous oxide, and all of the peculiarities in connection with it, when administered for extracting. From the time I left that office I have been experimenting with local anæsthetics continually, and I want to say that I always have a gas outfit on hand and use it not more than once a year, and then only when the patient desires it. I find nowadays, as a rule, the patient prefers a local anæsthetic, and as for myself, I would rather operate with it. One need not hurry and he can work more carefully, and at the same time the most important feature is the fact that it is not so dangerous. I have taken gas, and I have had a tooth extracted with a local anæsthetic and prefer the local anæsthetic every time. According to a prominent author, cocaine is not so dangerous when properly handled and is certainly not so irritating to the tissues. So, taking everything into consideration, a good local anæsthetic is the safest, all-round anæsthetic medium a dentist can use. To my knowledge the best and most complete paper ever written on the laboratory experimental findings was read before this society by Dr. Elgin A. MaWhinney; those of you who are interested in this line of thought I would advise to read his article if you have not already done so.

TREATMENT AND RESOLUTION OF BILATERAL EMPYEMA OF MAXILLARY SINUSES.

By George Zederbaum, D.D.S., Charlotte, Mich.

(Late Demonstrator of Anatomy, Northwestern University Dental School, Chicago, Ill.)

When such a case as here described presents itself to a beginner for the first time, he is usually at a loss how to proceed. It is true that our best colleges conduct oral surgery clinics, and treatment of empyema of the antrum of highmore, with all its complications, is not uncommon. Students as a rule attend, and try to note every step taken by the skillful oral surgeon; and yet while they pass their final oral surgery examination successfully, they have not done any of the operations themselves. The responsibility not having rested on their shoulders, they still lack that firmity which, no doubt, at one time or another has been lacking to each of us, and which characterizes the man of experience.

It is for the benefit of young practitioners that I wish to cite this particular case, which, though not commonly met except in clinics or in the hands of old established oral surgeons, one can never tell when he may have just such a parallel, even be he only a beginner.

A young man, aged 20, presented himself for examination. He complained of pain in the regions immediately above both first upper molars. There was noticeable considerable swelling, heat, and upon digital pressure pain was produced. The two first molars mentioned, as well as many other teeth, were badly decayed. The mouth in general was very uncleanly and malodorous. Temperature, 102 deg. Patient's history bad. Catarrhal inflammation of Schneiderian membrane, with its constant acrid discharges still present. Throat diphtheritic (his mother had lost five children within two weeks from the last named disease). Patient weighed 115 pounds, although he was a tall fellow, and should have weighed about 160. Altogether in a very unfavorable, emaciated and neurasthenic condition.

Procedure: The two upper first molars being beyond repair were extracted, and on their removal a quantity of pus came from each socket. Upon examining the roots of the extracted teeth, I noticed the apical foramina of buccal roots considerably enlarged. Each time the patient lowered his head to the cuspidor a quantity of very foul fluid was discharged from each nostril. As soon as the blood ceased to flow, each antrum was easily reached with a silver probe, and direction of sinus determined in both cases. The openings were enlarged sufficiently for the introduction of an abscess syringe point, and both sinuses were thoroughly washed out with a 50 per cent solution of glycothymoline (Kress). Then the wounds were dressed with a 5 per cent moist iodoform gauze. At same sitting all the remaining teeth were thoroughly scaled and cleansed. The patient was then dismissed, with orders to take one ounce of sulphate of magnesia, and to snuff 25 per cent solution of glycothymoline half hourly.

The young man returned the following day, with temperature of 104 deg., and the right side considerably worse than the left. More swelling, amaurosis of right eye, with considerable bulging. Old dressings were removed and found dripping with pus. A quantity of necrosed bone was removed from both sinuses; then all the inner walls curetted and again washed out with 50 per cent glycothymoline, and packed as before. He was sent to bed with instructions for quinine sulphate, gr. 3, three times a day, and frequent rinsing out of nose with 25 per cent solution glycothymoline. His temperature was 101 deg. before he left the office.

This treatment was continued for two weeks, dressings being changed every other day and packed more loosely each time. At the end of that time the discharge was not noticeable, and wounds almost entirely healed. A warm solution of cassia water was recommended as a permanent mouth wash. In addition to this the patient was then put on elixir of quinine, iron and strychnia—30 drops in a little water, with meals. As a result, the patient gained ten pounds in three weeks, and was discharged.

I attribute the early resolution of this case to drugs used and the strictly aseptic conditions under which all the work was done. The young man has had other work done by me since, and now that five months have elapsed since the antrum trouble, and no signs of recurrence are present, I regard the case as completely cured.

The pleasantest feature of this case, however, was that the young man, although poor, paid me twice the amount I charged.

PRESIDENT'S ANNUAL ADDRESS.*

BY J. M. BARCUS, D.D.S., CARLINVILLE, ILL.

A matter of great importance to us is the success of this society. Its usefulness to some of us cannot be overestimated. It is just about our size. The state society is too big to fill all the functions of a society like this, as the national society is too big to do the work of the state society. It is not all we see and hear that makes for growth, but only that which is assimilated, and it is the belief of the speaker that pabulum for the dentist will be supplied at this meeting, and it is his hope and belief that subsequent meetings will be as good or better than this one.

Last May at the meeting of the state society all members seemed to take an interest in the fate of the Dental Bill which was at that time in the hands of the Governor, having been passed by both houses of the legislature, which had recently adjourned. We had heard that it was his intention to veto the bill, and the state society sent a committee from Bloomington to Springfield to interview the Governor in the interests of the bill. We were received in the manner characteristic of the Governor, and disposed of by him in a very few words, and given to understand that no words from the committee would change his intention to veto the bill.

On this committee were Drs. Black, Crouse, Gilmer, Gallie, C. N. Johnson and a dozen others, and I thought then and believe now that the committee and the dentists of the state deserved better treatment, and resolved then to have something to say about the matter at this time.

It is difficult to treat within reasonable limits the veto of Governor Yates of this bill. It cannot be treated seriously or as made in good faith, without so stultifying the Governor as to leave his opinion too unimportant for notice. A casual examination of the session laws of 1903 shows that, in the act creating the Fort Massac Trustees, the Vicksburg Battle Ground Act, the Board of Arbitration Act, the Court of Claims Act, the Free Employment Act, the Justices of Chicago Act, the Inspection of Mines Act, and the Good Roads Commission Act, at least our Governor has shut his eyes to the constitutional questions which so imperatively forbade the approval of the Dental Bill, and has actually approved those bills, although each contains "restrictions" upon the Governor's power of appointment to a board or office not made elective by law, or absolutely vests it elsewhere.

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*Read before the Southern Illinois Dental Society at East St. Louis, Oct. 18, 1903.

The Governor says, "In my opinion the constitutional provision which says the Governor shall nominate and appoint, cannot be restricted in any way, except where officers are required to be elected. I do not believe that the legislature has the right to say that a given number of any board shall belong to the dominant party, for instance, or that more than a given number of any board shall belong to one party. . . . If the law creates a board and does not require that it be elected, then in my opinion under the constitution the Governor has the absolute right to nominate and appoint by and with the advice and consent of the senate, without any restriction whatever, and it follows that any restriction whatever is unconstitutional."

The revised statutes of the state may be carefully searched from cover to cover, and in not more than two or three instances can the power of appointment be found conferred upon the Governor without restrictions in some form or other. It is true that in some instances where these restrictions relate to qualifications based on experience, as in the case of the superintendent of insurance and the like, a wide latitude is sometimes thought to be exercised, but the legislative construction extending over a period of more than thirty years ought to outweigh any argument advanced in the veto message. The Governor's own construction of the constitution in other cases is not in line with his argument.

The Governor's gallantry may explain why the Fort Massac Board Act is approved, although the state regent of Illinois

D. A. R. and two Illinois daughters appointed by the state regent (not even by the Governor), comprise one-half the board.

The veterinary examiners are not made elective nor appointed by the Governor, but by the state board of live stock commissioners, and this may constitutionally be done, probably because they treat horses instead of people.

The "Court of Claims," by the Governor's express approval, must be "learned in the law and experienced in its practice, not more than two of whom shall belong to the same political party." But this act increases the salaries some $500, and that ought to outweigh a few constitutional provisions.

The Chicago Justices Act, however, strikes an ordinary country dentist as the worst, or the best, of all, when it provides, as it does, that "It shall be the duty of Judges of the ——— Courts of Cook County ——— to recommend to the Governor ten fit and competent persons ——— and the persons thus recommended the Governor shall nominate and ——— appoint Justices of the Peace," etc.

With such flagrant inconsistencies before us we must look further for the real reason why the dental profession is held back and prevented keeping abreast with enlightened legislation as found in other states, and the Governor and his friends must not complain if many believe the real objection was that the proposed restrictions prevented the setting up of another series of cogs in the political machine.

It must be admitted that the creation of boards has become, sometimes, a legislative abuse of which the tax-payers justly complain, but if they are to exist, as many of them should, the imaginary evils pointed out by the Governor are too trifling to outweigh the advantages to all parties of allowing an intelligent and progressive profession to regulate its requirements, standards and ethics, wholly free from that bane of modern politics, the political machine.

The free and untrammeled legislature representing the people, and not the bosses, may be more safely trusted to restrain or abolish boards selected by the profession, than the professions and public be left to the tender mercies of a board selected primarily because of the number of delegates they can control in a nominating convention.

WHY PORCELAIN BRIDGES FAIL—THE REMEDY.*

By George W. Schwartz, M.D., D.D.S., Chicago, Ill.

For me to try to tell this society *all* the reasons why porcelain bridges fail and assume wisdom enough to give the remedy would be viewed in the light of conceit and boastfulness. Any dentist, though, who has paid attention to the development of porcelain art and observed porcelain bridges, can tell some of the reasons why they have failed, and do so intelligently. Therefore it should be within my power to point out some of the causes of failures and inform you how I have tried to remedy them in actual practice. This I will do.

It is my belief that the most prominent causes of failure with porcelain bridges in their order are:

A lack of knowledge as to how to work porcelain.

Not studying conditions.

Making porcelain bridges that are too long to stand the stress put upon them when instead a removable piece is indicated and should be made.

Not dividing the strength equally between the roots of the teeth, the metal work and the porcelain.

Not protecting the interproximal space at each abutment.

Making saddle bridges, setting them in cement, leaving excess cement under the saddle.

Lastly, but not least, lack of artistic restoration in replacing lost teeth and tissue.

I will now take the causes of failure one by one, as I have cited them, offering what I believe to be a remedy.

For a dentist to try to make a porcelain bridge at this age of porcelain work without first acquiring a working knowledge of porcelain is an injustice to both his patient and himself. For him to have a smattering of porcelain ideas and then expect to deliver to his patient serviceable porcelain work in bridging, is a mistake and an expensive experiment. There is no place in practical dentistry where he will be required to stand so much grief as failure in porcelain bridgework. To avoid this he should first find where he can obtain the desired knowledge, then go to this source and get it. The money thus spent will be a small item compared to what his failures will amount to if he does not do so. He must learn how to decide on a bridge. He should learn how to trim roots for a porcelain bridge. How to plan the bridge. How to make the metal-work. How to carve and bake. Also how to set a bridge. To get these cardinal points drilled into him it will be necessary for him to change some of his other prosthetic methods. He must be careful, patient, clean, methodical, and gentle. He must bend to the courage of his convictions and follow them. He must demand of his patients the amount due him for this service so that he may feel justified in making a piece of work that will not be a failure and avoid unconsciously slighting his work.

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*Read before the Northern Illinois Dental Society, October, 1903.

There is no part of porcelain dentistry where "a little learning is a dangerous thing" more than in porcelain bridge work.

We are now to the point of studying conditions. This cannot be done unless the dentist has a thorough working knowledge of porcelain. He must take into consideration the age of the patient, whether a male or a female, the amount of stress that will come upon the bridge and in what direction, whether the abutments are exceptionally firm in their sockets or not, the amount of space the bite allows for porcelain, how long the span is to be and if it will stand the strain to be put upon it. This brings us to the next reason why porcelain bridges fail—that of making fixed bridges which are too long to stand the masticating force brought to bear upon them.

For years I have taught and written that many cases are bridged in porcelain and bridged with gold, where two teeth should have been crowned and a removable piece of work made for the case to get the best results, and it will take a stronger argument than I have yet heard to change my belief. Fixed porcelain bridges that are made where the span is too long to justify them, I count among the commonest of errors in porcelain bridge work.

We now come to failures from not dividing the strength equally.

I would like every dentist who does porcelain work to commit this rule to memory: *Divide the strength equally between the roots of the teeth, the metal work and the porcelain.*

Understand when I say divide the strength equally, I mean you should do so as nearly as is possible. One of the most difficult things I have had to do in teaching students was to impress on their minds the importance of cutting the roots down enough. In most cases they have been afraid to shorten them sufficiently. Bands for porcelain bridges do not need to be very wide. Dentists do not give enough attention to the detail of constructing the metal work. The bands should be made of platinum, as it is more accurately and easily fitted to the roots. Iridio platinum should be used for copes on the bands. Square iridio platinum wire should be used in the caps for posts in the roots used for the abutments. Square posts enable us to remove the caps from the plaster models and replace them in position with more certainty than round posts do. But round iridio platinum wire should be used for bars between the abutments, thus avoiding sharp angles to fracture porcelain in mastication. All joints should be soldered with 25 per cent platinum solder. You can then be sure your work will go through the furnace unchanged and not come unsoldered at the joints. Platinum backings should be soldered on the lingual surface of the metal work to support the added porcelain. By following this method I believe you will be pursuing the correct one to divide the strength as equally as possible between the abutments, the metal work and the porcelain. In constructing the metal work for a porcelain bridge the dentist fails who does not take into consideration the interproximal space at each abutment. The work at these points should be made so it will not encroach on the tissues. Neither should they be so shaped that they will retain food there. One of the serious objections in making saddle bridges and setting them with cement is the interproximal space is often obliterated and the tissues abused by the saddle bearing too hard at these places, together with not removing all excess cement from beneath the saddle when the bridge is set. It is imperative for dentists who make saddle bridges to learn how to set them with gutta percha. If a porcelain bridge has been made and is a serviceable piece of work, but lacks artistic results, it still has an element of failure about it and by many patients would be considered a faulty piece of work. For the remedy we must again turn to the preparation of the roots of the teeth for abutments. The roots should be so prepared by beveling the labial or buccal margins that when the caps are made they can be covered by live looking porcelain. To do this the facings should be ground to cover the bands. You cannot get the artistic results by baking porcelain body on the bands that you can by grinding the facings to cover them.

With this short paper I have tried to bring to your notice some of the reasons why porcelain bridges fail, and offered what I believe to be the right way to remedy them. And I thank the society for the courtesy of extending me an invitation to do so.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held Nov. 3, 1903, with the President, Dr. Donald M. Gallie, in the Chair.

The subject for discussion was the following resolution:

Resolved, That it be the sense of this body that dentistry is, and should be regarded as, a specialty of medicine.

Dr. C. P. Pruyn contributed a paper on the affirmative side, entitled "Dentistry: A Specialty in Medicine," which was read by Dr. C. N. Johnson, in the absence of the author.

Dr. W. H. G. Logan read a paper on the negative side of the question.

DISCUSSION.

Dr. William A. Evans (for the affirmative side):

Mr. President, Ladies and Gentlemen of the Chicago Dental Society—I am grateful to this society for the opportunity that they have given me of appearing before them in behalf of a measure which I have not originated, that is in no sense my measure, but to which I have contributed some little energy and thought.

The movement toward the amalgamation of the various branches of the medical profession is one that antedates my time by fully half a century. I recall very well, when I was a medical student, that we had but little regard for the specialties of medicine. For instance, I remember that in the faculty of

Bellevue Hospital Medical College the professor of ophthalmology had no standing and but little influence, as well as but few students. And what was true of ophthalmology was true of every other specialty. The transformation that these few years have wrought is apparent, I am sure, to every one of you. I do not wish to launch on what I have to say without thanking you for the extreme courtesy with which you, individually and collectively, have treated me. I note as an index of the courtesy that prevails amongst you that the paper of the affirmative side is written by a man who believes in the affirmative side of the proposition, yet it is entrusted to the care of one who leads on the negative side. Furthermore, a few days ago I received the paper of Dr. Logan, thus giving me ample time for consideration and for refutation, ample time to study the arguments he has advanced therein. This courtesy, in all candor, I do not believe prevails in the Chicago Medical Society—the mother who wishes to adopt you. Before I go further, I want to say that a few days ago this note came to me: "Evans, they will 'lick' you on this proposition." So, undestand, we expect to be "licked," we are here for that purpose, and we shall not feel badly if we are licked. With this introduction, I want to explain the proposed plan, because I am satisfied from what I have heard as to what was said here in the spring, and from what is contained in Dr. Logan's paper, it is not fully understood by you. The proposition was this: We will submit this proposition to the Chicago Dental Society and to the Chicago Medical Society, "Is dentistry a specialty of medicine, and is it to be so regarded?" If the decision was in the affirmative in each of these bodies, then in such a broad spirit of fairness as this decision would make possible, each society would proceed toward the details and items of consolidation. You will understand how necessary it is that the questions to be solved should be met in a spirit of frankness and of friendliness. This resolution was merely a test of spirit. If we regard ourselves as members of a family, then let us as brothers proceed toward a solution of those details that must be solved before a union can be consummated. It is not proposed that the Chicago Dental Society shall go out of existence. Furthermore, it is not even hinted that the profession of dentistry, with all its traditions and with all its past, shall go out of history. It would be folly for any man to propose such a scheme, not only to this body loving those traditions, but any body composed of thinking men and women. The plan proposed is the one that now prevails in the Chicago Medical Society. With the Chicago Medical Society the Chicago Surgical Society is now affiliated, and yet in the Chicago Surgical Society there is as much independence as there was before the union. Its papers and discussions are purely surgical; the traditions of surgery and the good name of surgery have not been altered one whit. They could not be altered to any degree whatsoever. In all surgical matters, the surgical society has just as much liberty and just as much independence as it has ever had. But for the larger questions of medical policy, the questions of the duties of medical men to the people, its duties and powers are delegated to a delegate body, the council, which is not properly the Chicago Medical Society, but is composed of delegates from each of the component or affiliated branches of the Chicago Medical Society. These different delegates meet in convention. They act as a control over the exuberance of this particular section; but, at the same time, when this section needs something that the delegates composing the council, or the majority of them, think is needed, they bring to bear on that question, not the influence of one hundred members of the Surgical Society, but the influence of the thousands of members of the Chicago Medical Society. There is the line on which amalgamation is proposed. (Applause.)

The resolution is, that dentistry is, and should be regarded as, a specialty of medicine. I take it that there is no argument that dentistry is a specialty of medicine. No man can look the question squarely in the face and say that dentistry is not a specialty of medicine. But there is some room for argument as to whether dentistry should be regarded as a specialty of medicine. The distinction between these two viewpoints is often well made—is often necessary. I believe with one of the essayists, it is a distinction that has been necessary for the evolution of dentistry. Recognizing the fact sometimes it is well that things which are, should not be so recognized as they are, I am willing to admit that there is room for discussion as to whether it is advisable for the medical and dental profession that dentistry should be regarded as a specialty of medicine. It is to this phase of the subject, namely, the *regarding* of dentistry as a specialty of medicine, that I propose to devote what I have to say this evening.

At this time I will not refer at any length to Dr. Pruyn's paper. The duty of defending that paper has been entrusted to me, and I will reserve that defence until an attack has been made.

In reading over Dr. Logan's paper, it seemed to me on analysis that there were five points he made, and I will answer these five points, not in the order in which he made them, but with regard to their importance. The fifth point that I have noted here is, that it would be necessary that dentists should listen to medical papers, and medical men should listen to dental papers. I think the exposition of the plan, as I have given it to you, proves that there is nothing to this point. The first point he made was that under such a plan as this any doctor could practice dentistry. Gentlemen, we are governed by law, but over and above every law that is written, that could be written, or ever can be written, sits the law of public sentiment. These things adjust themselves along the lines of utility, and if you tell me that in your opinion a medical man, who has received no dental training, whose fingers are not trained, whose eye is not trained, can successfully compete in dentistry with dentists whose fingers are trained, then I cannot understand your method of reasoning. (Applause.) If any doctor proposes to practice dentistry, there is but one ending for that doctor in this day of good dentists, and that ending is the poor house, and I have but little regard for the courage of the dentist who fears such competition as that. (Applause.)

The next point is, that were this motion to be executed, the medical colleges would teach dentistry. I believe this point belongs in the same category as the first point made. There is not a community in this broad land to-day that has not a dentist. When a dentist goes to any community he competes, not with nature unaided, but with some other man trained in his profession, and probably already established in that community. I will have something to say presently as to my opinion, and parenthetically, I have said it more than once, as to the relative value of medical and of dental training. But I have this to say here, that any man who believes a few months in a medical school will equip a medical graduate to compete in dentistry with a man who has spent years of study in a dental school, I have not much opinion of the judgment of that man as to what constitutes equipment for work.

The third point that Dr. Logan makes is one, I confess, I cannot understand. I would call your attention to the fact that it was upon this point that Dr. Logan laid the greatest stress. It is that it would be the failing doctor, the doctor who has not succeeded, the doctor who could not treat disease successfully, that would be a menace to your success in your work.

The next point he made was that dentistry must not sit in the brilliant rays of medicine. It is my belief, gentlemen, that dentistry has a right to sit, not in a position of being patronized, but in a position of independence and of equality in any light and in any company that can be gathered together. (Applause.)

In what I have to say further, I shall take as my text a quotation from Dr. Logan. It is: "Medicine has nothing to gain and nothing to lose by your solution of this question." I say to you as a medical man, as a man who has devoted some years of thought and energy to medical matters, that medicine has everything to gain and everything to lose by your solution of this question. Gentlemen, we must keep our faces to the future. We cannot, if we would grow, we cannot, if we be worthy of our heritage, turn our faces to the past. We cannot even stand still and regard the present. Our duty to those who have gone before, to those who are with us, and to those who are to come, is to keep moving onward. Medicine has problems that differ from the problems of medicine of the past. Medicine of the future is a question far different from the medicine of our fathers. Our future problems have to do with the stability of government and with the preservation of nations. If insane asylums are overcrowded and insanity is spreading among the people, it is the duty of the medical man to learn why that condition prevails and to guard future generations against those conditions. If prisons are bursting with convicts, it is our duty as medical men to know why they are overcrowded and what can be done to make men healthier physically and morally. We know now that heredity and environment crystallize themselves in public opinion and in public thought. We know that anarchy and socialism, various diseases of the body politic, spring from the diseases of the body physical. It is with questions like these that medicine of the future must concern itself. And these are not petty questions, gentlemen; they are not questions for individuals, nor for one group of men, but are for great bodies of men, to broadly consider and think out. It is to this heritage, it is to this work that we invite this portion of our profession. You say what is true will commend itself to the people. You know very well that this is only partly true. You know that every reform, every great movement, every great work has come in spite of the opposition of those who were most interested and who were the most likely to be benefited. These are not purely medical questions. In the evolution of events, you are fully aware that the teeth tend to degenerate, but the decay of the teeth is but a part of the tendency toward degeneration that goes with power and with opulence. Republics, as you know, have flourished, have died, and passed away. Why? Because the people of those republics have not read aright the laws governing physical existence and well-being. If our republic is to be saved for future ages, it will be because the medical men of this country understand medical problems better than they were ever understood before. This is but one branch of the medical problems of the future.

Now, then, to what do we invite the dental branch of the medical profession? We invite you, gentlemen, to study and investigate dental questions just as assiduously and as earnestly as you know how, but come into this council of ours as have come the affiliated societies. Help us with your shoulders to the wheel to accomplish those things that are to come; help us with our problems of the future, and we in turn can bring to you help for your problems along lines which you as an isolated body can never work.

The evolution of the times is towards specialism, but, at the same time, it is toward union of effort of the specializing bodies. In some matters these specialized bodies can do their best work in unions.

Dr. C. N. Johnson (speaking for the negative side):

Mr. President and Gentlemen: I must confess, at the outset, that I do not yet understand the purport of this resolution. I do not yet have a clear conception of what is involved in it. I have never in all my inquiries of the men who have advocated this and who have opposed it been able to get an idea of what is involved. I expected, when Dr. Evans took the floor, that I should get an insight into what was meant by the resolution. Dr. Evans told us that it does not imply that we are to lose our identity; that medical education is to have charge of dental education; that medicine is to dominate dentistry in any way, nor that dentistry is to interfere with medicine in any way. I must confess, that I am no nearer a solution of what I want to know than I was before he spoke. I will pause long enough to pay Dr. Evans this compliment, that if it is possible for any man to convince an audience by argument, Dr. Evans is the man to do it, whether the argument is true or not. I confess that, for a moment, his enthusiasm, his eloquence, very nearly carried me off my feet. But I hope Dr. Evans will give us the exact purport of this resolution. If it is the idea that dentistry and medicine shall co-operate in every way possible for the benefit of mankind, I am in favor of the resolution. (Applause.) I do not believe that medicine and dentistry can come too close together. If, however, the purport of the resolution is to the effect that medicine shall dominate dentistry, either in her educational method or in matters of legislation, then I am unalterably opposed to the resolution. (Applause.) I am opposed to it for the reason that in the countries where medicine has dominated dentistry it has not been to its betterment. I am making no rash statement when I say the progress of dentistry is those countries where medicine and medical councils have dominated legislation and education in dentistry, dentistry has not made satisfactory advancement. (Applause.) Not only that, but in every instance where a medical council has been the examining board to admit candidates to practice dentistry, they have never been able to place a just estimate on a man's ability as to whether he was fit to practice dentistry or not. I will give you one illustration. It has been reported to me on good authority that in one country the medical council in examining a candidate for the practice of dentistry asked the following question: "Diagnose fracture of the pelvis and give the treatment." That is only one of many similar questions that have been put to candidates to answer.

Dr. Evans has told us that this is a practical question, and not one of theory. I also say that we are confronted with a condition and not with a theory. Let us look at the advance of dentistry in this country. It is not my province to say what has been done by American dentists, but I take it that it is generally recognized that if dentistry has advanced in any country it has advanced here, and it has advanced simply because of the action that Dr. Pruyn referred to in his paper, when Chapin A. Harris was rejected on making application to the Medical College in Baltimore to have a Chair of Dentistry established in that college. That threw dentists on their own responsibility, and it developed the profession of dentistry. Since that time we have gone on, independent in thought, until to-day we are a distinct profession and so considered not only by ourselves, but by the public in general. Dr. Pruyn in his paper made the argument that dentistry was not in a position to be recognized by medicine at that time by virtue of the fact that the average dental practitioner was nothing but an artisan and tradesman. Let me say to you, gentlemen, that the forefathers and pioneers of dentistry were as broad-minded intellectually as the forefathers and pioneers of any profession on this earth. (Applause.) If we read the biographies of some of the old pioneers, we will find that we do not have to offer an apology for the origin of dentistry, and it would do the members of the dental profession good to study something of those early men in its history.

Dr. Evans made one argument which I believe to be a good one. He said that there are laws higher than any written laws, and that those laws were dominated by public opinion and by utility. If, in the future, we are to judge by the experience of the past in dentistry, and if we go on the basis of public opinion and public utility, I want to say, Mr. President, it is my firm conviction that dentistry will accomplish more upon the lines on which she has started out and continued during the last fifty years than she ever will by clinging to the skirts of another profession. (Applause.)

Dr. A. E. Baldwin (speaking for the affirmative side):

Mr. President: I am somewhat in the position to-night that some of the gentlemen who have spoken before me are. I do not know that I see anything ulterior in the resolution, but some seem to feel sure that there may be "niggers" in the woodpile we do not see. I was somewhat surprised when I heard a resolution was presented before the society last spring, to hear there was opposition to it.

The resolution reads: "Resolved, That dentistry is, and should be regarded as, a specialty of medicine, and ought to be recognized as such." If one would incline to say just what he meant, and meant most kindly what he said, I do not see how he could change this resolution. But as I understand the purport of it and the discussion to-night, I would be very glad to introduce a modification of this resolution to clear some minds of doubt and suspicion, as evidenced by a statement made by Dr. Johnson. My amendment is as follows by adding these words: "With the understanding that to be fitted to practice it requires special training in dental schools and colleges." (This amendment was seconded.)

I introduce this amendment not because I think it is necessary, not because I think the originators of the motion would not have put it in if they thought it was necessary, but there seems to be a tendency in the minds of the opposition to think that there is something in the woodpile, and we ought to uncover it. This is my reason for offering the amendment.

We have a legal representative with us to-night, who, I am told, will discuss this question from the negative standpoint. If we will stop and think what specialties are and what dentistry is said to be, and from what Dr. Evans has said, we cannot help but decide that dentistry *is* a specialty of medicine. If you will pardon me, I will read a definition of the word dentist, as given in Webster. I presume that Webster is reasonably good authority, because I have corroborated the definition by looking in the Century. "A dentist is one whose business it is to clean, extract, or repair natural teeth, and to make and insert artificial ones; a dental surgeon." A specialist "is one who devotes himself to some specialty; as, for instance, a medical specialist, one who devotes himself to diseases of particular parts of the body, as the eye, the ear, the nerves, etc." Medicine still is defined: "Is a science which relates to the prevention, cure, or alleviation of disease." If Dr. Evans had anything up his sleeve, you would have had it, or you will get it in the other chance he has to speak to you. He has told us what he thinks. He is earnest and sincere, and I think we can rely on what he has told us. Dr. Johnson told us that if he was satisfied there was no intention of interference, that if there was nothing but the simple motive of working harmoniously for the well-being of humanity, not ourselves, no one in particular, but mankind in general, he could see no harm in the affiliation. But he then cited an instance in a foreign country where union had not been productive of the best interests of the specialty. He cited an instance where an absurd question was asked by a medical examiner of a man who was being examined as to his fitness to practice the specialty of dentistry. I do not think any one of us needs to discuss the propriety of that question. Medical men, like other people, are sometimes foolish. I read a statement in a book written by a woman a good many years ago in which she said: "There's no denying women are foolish." This seemed a good, sensible statement for a woman speaking of women, until I read the sequel—"God Almighty made 'em so to match the men." (Laughter.) So I am not standing before you to say that there are not foolish medical men, because the Lord made them so to match the dentists. I think it would be just as true if I made the statement the other way. I think if we will get down off of our hobbies, if we look at this question from the "ground floor," it is simply a question of where we stand, of where "we are at."

Dr. Johnson spoke with commendable pride of what dentistry had accomplished. It is true, its accomplishments have been very great. I would differ from him somewhat as to what has made it great. I do not think it was simply because Dr. Harris was turned down by medical men. It was because they lived in an age of progress; because there were progressive, thinking men in all lines. Medicine to-day is not what it was in the time of Dr. Harris. Medical men are willing to have us unite with them. Why? Because it is for the interests of humanity that they do it; that harmony in research should prevail; that there should be harmony of action between all of the people whose actions, whose life, whose effort are devoted to the alleviation of suffering, direct or indirect. The student of dentistry to-day, if you please, possibly does not need the education afforded by a medical college. I am one of those who believe that there is not any of you that will ever know too much, really know it—yes, really know too much. There are lots of us who would do a good deal better if we did not know so much. That is not confined to dentistry. It is not confined to medicine. Confidentially, it is confined to all humanity. There is no man who is not just as well as qualified to dig a ditch if he has a good education as he would be if he did not have it. There is no one of you who will ever know too much about the brain, about the muscles, about the bones, about any and every division of the human system and all its environments and its past history. All of these things will make you broader men, broader practitioners, and as you are broader men and broader practitioners you will fill the niche God has put you in to better advantage than you would do to turn your back. Dr. Evans has well said that no man can live and be what he should be in this age by looking backward. He must look and move to the front.

Dr. Johnson will agree with me when I say, with all due respect to our great men in the past in dentistry, that those very men are not as great as they would have been if they lived in 1903—not one of them, and dentistry is not alone in making progress in the last fifty or hundred years. Medical history goes back much farther, but you will find as much empiricism and as much foolishness in early medicine as you will find in early anything. But these men learned from their predecessors and kept their faces to the front, and the result is to-day a beautiful illustration of what *preventive* medicine is doing.

I was interested in reading the other day in the DENTAL REVIEW a paper read by a member of this society—Dr. K[illegible]. Speaking in defence of his paper he said that many of us do not understand that the new lines are not like those of the past. The time is coming, although we may not live to see it, but it is just as surely coming, when our lives will be devoted to preventing troubles as it is now in alleviating the ills of mankind. And to accomplish this, how best can you do it? I am a Baptist. Years ago there was a story circulated that somebody, who was not a Baptist, dreamt that he had died, and went to heaven, and found Baptists off in one corner, with a high board fence, holding close communion. This story illustrates what I want to say here. I do not think we will get to the bounds of our ability by going off to one side, and building a high board fence around us, and keeping ourselves entirely by ourselves. It is better for us to work together with others, members of the medical profession. It is better for scientific men to do this. We have men, it is true, in the dental profession of whom we need not be ashamed; but there are investigators in all fields, in medical societies, etc., and large sums of money are being set aside for the investigation of certain diseases. This should likewise obtain in dentistry. I am sometimes afraid that we are inclined to believe there is one kind of pathology, physiology and anatomy for dentistry, and another kind for the physician. Of course, environment and heredity count, and yet the truths brought out to-day in medical societies and medical schools, and medical educational institutions generally, indicate unity of effort in the alleviation of the ills of mankind. We do not seem to be in the procession. What are we? Artisans, mechanics, carpenters, bricklayers? Oh, no; I should not want to say that. I should say, as Dr. Pruyn has said in his paper, if the resolution meant what some have said, they thought it might mean, I, like Dr. Johnson, would be opposed to it. But if it means what my amendment means, I believe it clinches the argument beyond all peradventure. My understanding of this question is not that there shall be any interruption at all as to the methods by which we may educate ourselves, but it is to bring about unity of action in studying and investigating scientific subjects, trying to relieve the ills of humanity. I do not want in anything I have said or will say to say anything which will reflect upon the integrity or well-meaning of anyone who has spoken on this paper or who will speak on it. I think the resolution should be read again, as well as the amendment I offered to it, before a vote is taken on it, so that you can vote as you think you should vote.

Dr. Logan in his paper gave an able presentation of the negative of this question. However, I think that some of his objections are not tenable. They are not questions that should arise. It is not a question at all of the laws of Scotland or of England. Let me say parenthetically that laws exist here, and no man, either Dr. Logan or Dr. Johnson, has any right whatever to befog your minds by telling you what absurd things are done somewhere else under the guise of this or that, or the other. We dentists in America should know the laws we have and how difficult it is to get them changed. Medical men find the same trouble. There are certain laws, and we have about as many of them as we need. You cannot make a man good by law in dentistry or anything else. I believe Dr. Logan stated that if the resolution is favorably considered in the city, state and national societies, we will soon have a state of affairs similar to that found in Scotland and France. I wish Dr. Logan would think a little before he repeats that in his closing discussion, because I do not think he fully grasps what he says when referring to the laws of Scotland and England. We all know, those of us who know anything about Scotland and England, they have certain old laws. Some years ago I was talking with a member of the board of directors of the Bank of England about American and English coinage, and he said to me that America had the finest system of currency in the world. I said to him: "Why do not the English adopt it?" and he replied it was evident that I did not know the English people. He said the English people were satisfied with anything that their great-grandfathers were satisfied with, and that therefore they would not countenance any change.

What I want is to say that we ought to think a good deal on this question. We all should recognize that there is no "nigger" in the woodpile, but that the resolution means just what it says. It means simply that we should unitedly try to do good to the human race through administering to the human system wisely in our special fields.

MR. PATRICK H. O'DONNELL (speaking on the negative side):

I have never been in such an embarrassing position as I am in to-night, because I do not understand the discussion fully. I am not informed in regard to your nomenclature, or to dentistry or medicine, and therefore I fear that I am not able to make an intelligent discussion.

It is impossible to be a match to Dr. Evans, whose remarks were magnificent and ably presented. He should have been a lawyer. (Laughter.) I have had a little experience in college life. I am lecturer on dental jurisprudence, which, I believe, is a new departure in dentistry, so I have come here not entirely a stranger to the subject.

The resolution offered here is of no value unless it tends to the good of men, or unless it advances education generally. No body of educated men should get together and discuss a proposition unless it is for the advancement of thought, of general knowledge, of general good, of general welfare. If the affirmative can say that this resolution does that, then I am willing to favor it, because I spent seven years in a university myself, and have respect for all professional men.

It has been said that I was to speak on the legal side of the case. I will only touch on it, because it would be as unfair to talk on the law as it would be for you to compel me to talk upon medicine. You could not answer me in regard to the law, and I could not answer you in medicine. Therefore, I may consider myself personally ostracized in this debate.

The last gentleman who took the floor made the statement that he would modify the resolution until it would say in substance that the present system of teaching dentistry shall not be disturbed. Let me tell you that the resolution even then would be entirely incomplete. It needs something more. In addition to the dentist receiving a certificate from the state of the right to practice dentistry, the resolution should say that the candidate shall be examined, not by a medical, but by a dental board; then you have the resolution as it should be. But you have nothing more than you have to-day, and such a resolution is absolutely worthless. (Applause.)

I have respect for every man who works for the betterment of his profession, who loves his profession, and Dr. Johnson has solved the whole proposition to-night in one statement. Chateaubriand said that all genius was memory, and memory and history solve all these kinds of propositions. It was only fifty years ago, I think, when Dr. Harris by unanimous vote was cast out in utter darkness; but his mind and the minds of his followers acted like the human intellect always acts—confine it, narrow it, and it progresses onward and upward and develops. But the human mind, working along the ordinary lines of intelligence and intellectual activity, ultimately made a profession that is substantially as high, and requires as long efforts of study and development as does the profession of medicine itself. (Applause.)

The argument for this resolution is that all medical men will work together in harmony. Let me answer that. What are the facts? A hundred years ago the surgeon was not a medical man. His profession was more attractive than ordinary medicine. He came into the medical profession, and a little over forty years back the medical profession dropped almost out of sight. It is only within the last five or six or possibly seven years since the discovery of the yellow fever germ, since Pasteur's discovery, since the discovery of the mosquito, the spreading of the plague, since preventive medicine came into vogue; it is only in the last ten years that the medical profession has stepped out from under surgery and become grand, noble and worthy of the sublimest efforts of scholars and intellectual men. What would be the result if you placed dentistry under medicine, and medicine under surgery? Where would the profession be, after you have spent the last sixty or seventy years in bringing your profession to the great state of perfection that it is to-day? You have taken it out from all of them; you have built it up until to-day it is honorable and ranks as one of the greatest professions of the world. I say keep it by itself. How are you going to better the condition of human ills; how are you going to cure human ills; how are you going to better humanity more than you are to-day, when you are an army of thousands and tens of thousands of men working in one line, treating diseases of the teeth, of the mouth, etc.? You are developing dentistry and bringing it to a high state of perfection. Medical men, on the other hand, should leave the mouth alone and develop methods of teaching and of alleviating the disturbances and diseases of the human system. Let me put it in this way, so that you may more clearly understand it. Dr. Evans said, let us all come together as brothers. To-day you are a separate profession. The surgeon is partially separated from the purely medical or drug man. If you all go into one organic body, all stand as medical men, before you act exactly alike this condition must prevail, and I think there is no refuting it, that either dentistry must dominate that body before there is unity, or else medicine must dominate the entire body. And the moment you step into medicine and say we are part and parcel of the medical profession, that moment you either must dominate or else you must submit; that moment you must submerge your profession, or that moment you must submerge the medical profession by your profession. Choose between the two. Which of you will be independent, which will control, and dominate the other? Is it necessary that you be submerged or be merged together by this resolution to meet the requirements laid out by Dr. Evans? I think not. There is no necessity for such amalgamation. Are you not able to-day to enter into a federation? Are you not able to send to the general council your delegates, your masters, your professors, your experts, your men of profound thought to meet their geniuses? Is it not possible to diffuse common knowledge to-day? Is it not possible to work in absolute harmony, and let each man go on developing his profession to its acme of perfection? You do not want to be dressed in gaudy colors. You do not want to feel like a jackdaw putting feathers in his plumage that do not belong there. The dentist receives his diploma and stands before the world as a specialist. Does the fact of receiving a diploma from a dental institution make him a specialist in the eye of the law or in the eye of the community? It does not. The dental profession is made up of instruction in many sciences. Men are made deft with their fingers, but their minds are equally brilliant. They train their hands and they train their minds, and these men are dentists. But one cannot become an expert or specialist in dentistry until he has had years and years of training. That is a specialist. The specialist is a man who has a broad special and scientific technical knowledge. Do you say when you open your doors and send out five thousand men with their diplomas to different localities that they are specialists? They are not. Do you say they are specialists like Dr. Brophy or many other men in your profession? No. Are they medical men? They are not. Here is the difference: The physician sits by the bedside and gives drugs and awaits the ultimate result. He watches the case carefully. That is his profession. Is it so with the dentist? The dentist gives a drug only for a primary purpose, namely, that he can prepare his patient for deft fingering, for working in metallurgy, for building up and restoring parts. One man alleviates and repairs, the other builds up to perfection. He attempts to imitate nature as perfectly as possible. The two professions, I take it, are entirely distinct, separate and broad in their purposes. One may be a specialist in medicine; the other may be a specialist in surgery, but is never a specialist in the general practice of the medical profession.

I hope, gentlemen, you will follow the course that you have undertaken, that you have mapped out. Look back to the man, Harris, over sixty years ago, and see what your results are to-day. Hold out your hand to your brother physician or to your brother surgeon. Co-operate with him in the general welfare of humanity, but you co-operate best when you retain your own individuality or confine yourselves to you own objects, and bring your profession to the highest state of perfection.

Dr. Truman W. Brophy:

I have listened with a great deal of interest to the proceedings this evening. I have not time to go into details, but I wish to refer particularly to the remarks of Dr. Evans, and in so doing I want to correct part of his nomenclature. He has by his own arguments pointed out to you that we are a distinct profession. He has referred to us as dentists, but to his profession as doctors. I would like to have him in closing define what he means by doctor. If he goes back to the origin of the word he will find that the word means educator, and remarkable as it stands to-day, we find medical men of broad education making use of the word doctor as applied to themselves to the exclusion of all other doctors. It is not fair. It is a mistaken idea. By the statement made by Dr. Evans, he has certainly indicated that we are a distinct profession, and we are as much entitled to the term doctor as any other class of doctors. A doctor is a teacher, and the man who is the most competent teacher is the best doctor, and so I hope Dr. Evans in his closing remarks will change his nomenclature and speak of the members of his own profession as physicians and surgeons, and not as doctors, to the exclusion of every other doctor. (Applause.)

I am satisfied Dr. Pruyn does not fully comprehend the scope of the words he has employed. He has spoken of physicians and referred to the department of medicine.

I would like to say something about the administration of drugs and of anæsthetics. Does any one living dare to deprive one of his birthright? Where did you get anæsthesia? To whom are you indebted for this great discovery? To whom is suffering humanity indebted for the great boon of anæsthesia? The medical profession of to-day throughout the world is indebted to the dentist Horace Wells for the discovery of this the greatest of all agents employed in the whole scope of medicine and surgery. No man dare say that a dentist, who has been properly trained to make use of this agent, has not a right to do so. It is a piece of audacity on the part of any man to assume that we have no right to use that which we have discovered and which we have used for operative purposes for more than half a century.

Dentistry is not so much a department of medicine as many who have not weighed well the subject would have us think. Custom often makes mental impressions which logic removes with difficulty.

There are certain branches of learning which are sciences per se parts of which are essential in the laying of a foundation for the study of medicine, but they are not by any means exclusive branches of medicine.

These sciences must be studied by men in other professions than medicine that the student may understand the principles underlying his vocation. The pharmacist must know materia medica and chemistry, both organic and inorganic. The engineer must understand physics and the law governing the application of force. The sculptor must know the outlines of anatomy or his work will be a failure. The naturalist must be well grounded in physiology as the foundation upon which his profession rests.

"Biology is a science which treats of the nature and properties of living matter and of living beings."

"Physics is a study of the phenomena of the bodies and of the forces acting upon them, excluding those acting on atoms, which pertain to chemistry."

"Chemistry is the science treating of the mutual interaction of elements and of their compounds. The art of identifying or ascertaining the composition of substances presented for analysis."

"Physiology is the doctrine of the vital phenomena of organisms and their relations to chemical and physical laws."

"Anatomy is the science treating of the structure of organized bodies; it may be vegetable, animal or human."

These sciences are not medical, nor are they in the broadest sense departments of medicine. Mathematics is employed in medical teaching and practice, but no one would claim that this science is a department of medicine. Medicine extracts from them as much as it requires to prepare her students for the duties of practitioners. The dental colleges likewise draw from the arts and sciences named and employed the knowledge thus acquired in building and developing the student into the skillful, successful practitioner.

Dentistry is a profession embracing a knowledge of:

First. Physics, Chemistry, Anatomy, Histology, Metallurgy, Physiology and Bacteriology.

Second. Its practice requires a high degree of digital skill, manual dexterity and technology and an accurate knowledge of mechanical principles and the fundamental laws upon which they are based.

Third. A thorough knowledge of the physical and chemical properties of all the minerals and metals and their various dental uses.

Fourth. A knowledge of Materia Medica, Therapeutics, general and special Pathology, Physical Diagnosis and principles of Surgery and Oral Surgery.

Fifth. Operative and Prosthetic Dentistry and Orthodontia.

Under the five heads it will be seen that the strictly medical subjects are included in *number four.*

It is fair to state that dentistry is divided into five parts for consideration and study, one of which is medical. Whoever would attain the highest degree of success in the dental profession must keep in mind the necessity of being well grounded in the sciences named, or as much of them as underlie the principles and practice of dentistry.

A man who has graduated in medicine and received a license to practice from the State Board of Health of the state in which he lives may practice any department or specialty of medicine he chooses; if he qualifies as a dentist by complying with the requirements of the law, passing the State Board of Dental Examiners, etc., he may practice dentistry. He is a medical man and he may properly call himself a medical specialist, but how can a man who *does not belong* to the medical profession, who never attended a medical college, honestly call himself a medical specialist?

With more propriety might the graduate in pharmacy call himself a medical specialist than the dentist, because the pharmacist is practicing medicine all the time. In fact he prescribes for more patients than many of the physicians who send their prescriptions to him to be compounded.

Dental diseases must be treated according to well-established principles in medicine and surgery, so the dentist requires a knowledge of medicine and surgery in carrying out this treatment, but medicine and surgery as applied to dental diseases cannot be learned in the schools of medicine, as few medical colleges teach them.

In conclusion, let me say that, if this resolution should pass as it is and be enacted as a law of the state, it would be a calamity. As to the condition of things which exist abroad, I may say, four hundred years ago in France dentists were medical men. Many of them are to-day. Any physician in France, who desires to do so, may practice dentistry, and it would be an unfortunate state of things if this should exist in our country as it does in France and some other countries. We have made our way as dentists. We stand out before the world as a learned body, and we feel that we are able to make our way in the future.

While we would not add very much perhaps to the glory of medicine, we would by and by bring medicine up to a higher standard, so far as dental diseases are concerned, and have medical colleges teach its students so that they may be better prepared when they go out to care for the ills of mankind. A resolution was adopted at the last meeting of the National Dental Association to the effect that it is the sense of this body (the National Dental Association), teachers in Oral Hygiene, Dental Pathology and Therapeutics, be added to all the medical schools of our country. Those of us who are engaged in this particular field of surgery are brought constantly in contact with conditions which show a very serious lack of knowledge in this important department of medicine.

Dr. Edmund Noyes:

There are two or three points which, it seems to me, ought to be plain enough in regard to this matter, and which admit of no special controversy. In the first place, that dentistry is a specialty of medical practice, taking the broad definition of medical practice given here to-night, it being a part of the great art of healing. I need not go any further than that. There is no possibility of controversy on that affirmation. On the other hand, dentistry is an independent profession. That it is not a specialty of the organized medical profession, deriving its authority from the diploma of medical schools, is equally plain and beyond any controversy, and so far as I can see, the vote on this resolution must depend upon whether we take the broad or the technical definition of medical practice. Whichever way we look at this matter, it seems to me that the proposition referred to by Dr. Evans ought to be hospitably entertained by this society; it is desirable that in all purposes and activities upon which we are equally competent and equally interested and equally responsible to the public, the medical and dental professions should act together. If the proposition to affiliate the dental society with the medical society on an equal footing with the other special societies, as the ophthalmologists, the surgeons, etc., is presented to us, it is well worth while to give it the courtesy of a careful hearing, and a request for the presentation to us of the full details of the plan. I do not see that there is any necessity for us to be afraid that it will revolutionize our educational methods, requirements, ideas or our laws or anything relating to our practice. All these things are upon too firm a foundation in this country; they are too well established; their utility is too manifest, both to the dental and medical professions, and to the public, to cause us to entertain any fears in regard to them, and there is no reason why there should be any fear in regard to meeting the overtures of the medical profession with an open mind, to see whether a plan for co-operation in any respect can be made practicable and useful, or not.

Dr. A. W. Harlan:

I think we should be profoundly grateful to Dr. Evans, ex-president of the Chicago Medical Society, for presenting this question to us. In saying that, I say all that is now necessary, because there is an effort on the part of medicine in Chicago to be on the most friendly terms with dentistry. I will not discuss this question from the standpoint of any previous speaker. If the dental profession is to become a component part, or under the protecting wing of the medical profession in this country, we will have to change—ultimately—the laws governing the practice of dentistry. We will have to change sooner or later the giving of a special degree, but not now. In those countries where dentistry is absolutely known to be under the influence and authority of medicine, it is stifled. In Austria no dental degree is permissible. All legally practicing dentists must first be doctors of medicine. It is likewise true in Hungary. In Holland and Italy it is the same. In France any medical man can practice dentistry, although since 1892 there has been a special dental law making it impossible for any foreigner to do so unless he first takes his diploma in France. That is likewise true in Switzerland. In Greece no one can practice dentistry unless he has a medical degree. In England L. D. S., which is a special degree, is practically equivalent to the degrees in medicine, and it is recommended by the General Medical Council (which has supervision over the authority to practice in Great Britain) that in addition to the L. D. S. the M. R. C. S. should be taken by the prospective dentist. England is so exclusive in connection with her L. D. S. that she will not permit an L. D. S. from one of the colonies to come and practice in the Mother Country without first complying with her preliminary requirements, yet they may be just as high in Canada, Australia, or some of the other colonies, as in Great Britain itself. We will have to change our titles ultimately; I don't mean next year, five or ten years from now, throwing aside all our previous work. We would have no dictionary of dental medicine, no dictionary of dental science, dental anatomy, dental chemistry, dental pathology. All of these things will have to be changed. All dictionary makers will have to eliminate practically the words dentist and dentistry and choose something else, as stomatologists or odontologists, or some such title as that which will comprehend us in a different way.

At the present time in the United States we have about sixty dental schools and dental departments in schools of medicine. In Canada we have three or four, and in other portions of the world about forty or forty-two, so that we have more than one hundred schools devoted to the teaching of dentistry and dental surgery. We have in the United States nineteen special journals. In Canada one, Australia two, South America seven, in Great Britain four, France seven, Italy three, Spain three, Germany seven, Switzerland two, Belgium one, Holland two, Russia three, Austria and Hungary four, and a few scattering ones, one in Greece, two in Japan, and one in China, so that a special dental literature has grown up during the past sixty years. You can readily see, therefore, we have a pretty good beginning. It is impossible, it seems to me, to bring about complete unity of all of the various departments or specialties in medicine without thinking of these things, and while I am very glad and proud to know that the Chicago Medical Society is willing to accept us and take us in, and make us one of them, yet the instant we do that we have to stop the National Dental Association, because we shall have to go to the American Medical Association, which is the central organized body of the medical profession in the United States, and of all the special departments thereof. (Applause.)

DR. HART J. GOSLEE:

I did not intend to enter into a discussion of either side of this question, owing to the lateness of the hour and because of the fact that it has been so thoroughly discussed in all its phases.

In justice to my friend, Dr. Evans, however, and incidentally to myself, I want to say a word or two with regard to the history of the resolution. It is my good fortune to enjoy the friendship of Dr. Evans, and early in the spring I was requested by him to meet with him a few evenings for the purpose of talking over the proposition which we have been discussing to-night. His thoughts as expressed to me at these different times were, that it would be a very good idea if some means could be brought about whereby the medical and dental professions could be brought into closer union, so that greater unanimity of action and of progress might be effected. I agreed with him that such a thing would be laudable, if practicable, and was assured by him that such action would be in the interests of the people at large and of the professions of both medicine and dentistry. Hence with that assurance from so honorable a man as Dr. Evans, I felt safe in submitting the resolution that has been discussed to-night. The resolution was expressed in my own language, but before presenting it I conferred with some of my friends, Drs. Gilmer, Pruyn, Bentley, and Keefe, with a view to ascertaining their opinions upon this particular question, and all of them agreed with me that it would be a laudable undertaking whether it was possible to bring it about or not. And so I followed the suggestion of Dr. Evans, and, acting upon the advice and counsel of my friends who signed the resolution, presented it to this body. At a former consideration it seems that some inference was made to the effect that there was some ulterior motive back of it. I must brand that as a falsehood. It is ridiculous to think that an intelligent member of the medical profession would have any ulterior motive back of such an action, and I am sure Dr. Evans is too honorable to present such a resolution backed with any such a motive.

Personally, my views upon the passage of this resolution are these: If it is only for the purpose of bringing the medical and dental professions into closer union, I favor its passage; but if it will or may ultimately in any possible or conceivable manner take away from us our legislative and educational autonomy, then I am opposed to it, and I think the whole question hangs upon the interpretation we give to these two phases of the question.

Dr. Thomas L. Gilmer:

Mr. President—As the hour is so late I did not expect to be called upon to discuss this subject. I have nothing to say excepting that when Dr. Goslee conferred with me regarding it, and we discussed the matter, and I authorized him to sign my name to the resolution, I did so believing firmly in a broad sense that dentistry is a part of medicine. I have not the slightest doubt of it yet. I do not believe it will do us any harm to pass the resolution, and through it come into a closer relation with men in other branches of the healing art. It will benefit us, and I think we may be of benefit to the members of the other branches. It will broaden us both. I should be pleased to see it tried, therefore shall vote for the resolution.

DR. C. E. BENTLEY:

I think the matter has been thoroughly discussed. Everybody here is decided or at least has a conviction. I cannot see the terrible sacrifice the dental profession is to make by accepting the invitation to become a branch of the medical profession. If I understand the constitution of the Chicago Dental Society, it states that we are a branch or specialty of the mother profession. Am I correct in that, Mr. President?

THE PRESIDENT:

I do not know.

DR. BENTLEY:

If I am correct, this resolution is nothing more nor less than confirmatory of a caluse of the constitution. I cannot see the dangers in it that some of the other members see. I will vote for it.

DR. GOSLEE:

I feel called upon to announce the fact that through my interpretation of the possible outcome of such action, I have decided upon mature reflection to oppose the resolution. I want Dr. Evans to know this, because of the fact that I presented the resolution and yet feel called upon to oppose its passage, and I do not make the announcement with a view to influencing the vote. But, nevertheless, I shall vote in the negative.

DR. EVANS (closing the discussion on his part):

Perhaps the only point to which I should pay any attention is the quite evident fact that a good many of those present are not clear in their minds as to what the resolution conveyed. The resolution reads: "That it be the sense of this body that dentistry is and should be regarded as a specialty of medicine."

It is perfectly satisfactory to me that the amendment offered by Dr. Baldwin should be embodied in the resolution and it is also perfectly satisfactory to me that Mr. O'Donnell's amendment should be added to the resolution. Each of them is satisfactory and neither of them destroys the purport of the resolution. However, they may destroy a meaning that has been attached to it by some of the speakers, one which was never contemplated, proposed or advocated. This statement is in no way binding, either upon this body, should the resolution prevail, or upon the Chicago Medical Society.

The understanding was that we would offer a resolution in the Chicago Medical Society with a view of ascertaining the temper of the medical profession toward the dental profession, and that a similar resolution would be offered in the Dental Society with a view to finding out the sentiments of the dental profession toward the medical profession. At this point I wish to pause long enough to say that in my original presentation of the case I did not speak from written copy. Perhaps I did not select my words as carefully as I should have done. I meant no offense toward the dental profession or toward anybody, by using the term "doctor" as applied to medical men only, and I take it for granted that I so used it because Dr. Brophy has said so. Nothing is farther from my mind than to arrogate to my profession the only right to use the term. I feel very certain that there is not a man nor a woman in this audience who feels that I meant any discourtesy toward the dental profession or toward those assembled here, in my use of the word doctor. (Applause.)

Should the resolution prevail in the two societies, the next thing to do would be for each of the societies to appoint a committee and let these committees discuss the details of federation (and I use the term suggested by Mr. O'Donnell). If such details can be arranged satisfactorily to the committee, then those details could be reported to the respective bodies, when there would be ample time for the discussion of them. Until that time, details are not in order. In discussing the question I went into no detail whatsoever. At best, I could only have given you what I believe to be the proper way to solve these technical points. It would not have been binding on my society or yours. There is nothing in this resolution which can be construed as committing this body or the Chicago Medical Society to any details whatsoever as to medical laws, or dental laws, dental education, or medical education. Suppose you vote in the affirmative on this proposition, what have you done? You have not changed the legal situation one iota. You have not modified any law on the statute books, nor any law of dental procedure. An affirmative vote does not commit this society to any procedure further than this: You say to the Chicago Medical Society, We want to co-operate with you if a plan can be arranged to do so; and the Chicago Medical Society, by adopting this resolution, says to you: We want to co-operate with you if a method can be arranged.

The next step in order will be for our society to appoint a committee, that committee to confer with a committee from your society and the report of that conference to be reported back. Then will be the time for the discussion of details. I will ask Dr. Goslee if that is not a correct statement of the plan proposed.

Dr. Goslee:

It is.

Dr. Evans:

It seems to me that there are two dominant ideas in the minds of those who oppose this resolution, and those two dominant ideas are matters of detail. The first is a matter of change in the educational method and in the legal requirements for the practice of dentistry.

I agree with Dr. Pruyn that should this federation go through, the dentist would be educated in the future just as he has been in the past. In so far as the relation between dental and medical education is concerned, it is my judgment, gentlemen, expressed on more than one occasion, that the dentist to-day, as he is turned out from dental schools, is a better educated man for the work that he has to do than is the medical man for the work he has to do. When a dentist graduates, he is capable of doing dentistry. When a physician graduates, he is not capable of practicing medicine. It does not seem reasonable, it does not seem logical, it does not seem sane, to say to you who teach well that you shall conform to the methods of this other group of men who teach less well. I am willing to accept the amendment that has been offered by Dr. Baldwin and I am also willing to accept the amendment proposed by Mr. O'Donnell, because I believe that the dental practitioner is a better judge of how a community can be protected from incompetent dental practitioners than is the practitioner of other branches of medicine.

The second matter that seems to disturb some of the speakers is the idea that the medical profession will dominate the dental profession.

There is a possibility that in such a federation the dental profession will be overshadowed by other branches of the medical profession, but I do not think so. Mr. O'Donnell made use of an illustration that struck me as being peculiarly unfortunate for him, but peculiarly fortunate for my side of the question. He showed us what the relations of surgery to medicine had been, and he argued from that that you should not go into this federation. The facts argue against his position. The fact of the business is that people succeed or fail according as they meet conditions, and if you meet conditions you cannot be dominated by anybody. So long as you meet conditions as well as they can be met by any body, the man, the law, or the government does not exist and cannot exist that can dominate you.

It is proposed, as I said a while ago, that if a method can be arranged, the Dental Society will go along just exactly as it does at the present time. The dental colleges will go along just exactly as they do now. The only thing I have to ask is this: I do not ask you to vote for the resolution; I do not ask you to vote against it; I simply ask that you view the question just as broadly as you know how. That you look at it, not in the light of dentistry of the past further than you can get light for the future from that source; not in the light of dentistry as it prevails in certain foreign countries where the conditions are not similar to those in this country. I ask that you decide from the standpoint of the future of all branches of medicine: What is to be required of medical men? and how can medical men of all specialties best meet those requirements? (Applause.)

DR. BROPHY:

I would not for a moment have Dr. Evans, or any one present, think that I assumed he intended any discourtesy to anybody in using the expression "doctor," but it is well known among the laity, as well as professional people, that this word is almost always improperly confined to the medical profession. I would not have mentioned it were it not for the fact of calling attention to the mistake so often made.

DR. LOGAN (closing the discussion on his part):

Dr. Evans, in his first remarks, answered the five questions brought out in my paper. He stated that we feared the competition of the incompetent physician. That was not in my paper. The statement was that the aim of the dentist was to preserve human teeth. I said that if the physician operates on teeth he will do it poorly and we will have dental organs lost that otherwise might have been saved. That was the reason I did not want the physician to be allowed to operate on teeth, because of his ignorance of dental operations. We do not fear his competition. Competition is not a question in dentistry.

He said the law that governs everything would care for the future of dentistry. The law that governs in a foreign country is not the law that governs in this country, because dentistry here is above dentistry in some other countries, and he said we should not compare them. Still he admitted that the medical schools of Europe are superior to his own, and I will admit that these superior medical schools have dominated dentistry in foreign countries. How then can we, as dentists, expect better dealing from the schools that are not their equal? (Applause.) He has said—and great stress has been laid upon the fact of his individual thought—that he did not intend that medicine should dominate dentistry, and in my paper I said the same thing.

Now, what the Chicago Medical Society wishes is an important question to us. Its members are sincere in their wish that better things shall come about. We wish better things for dentistry. That is the point. Do not go back to the past farther than you can look to the future with benefit. That is right. But go to the past just so far as you can be benefited in looking into the future. In no country has dentistry stood alone so long as in America. In no country has dentistry advanced so rapidly as it has in America. (Applause.) In no country is dentistry so low as in the countries in which she is known as a specialty of medicine. That is true, and you know it, every one of you. It is not a question of flowery argument, but one of facts. It is a question, gentlemen, whether you want to give up your identity as professional men in the true sense and become confined to a single part of a great profession, and not even have the full degree of independence of that profession. Dentistry is something apart from medicine. Medicine cures human ills, and restores the organ or part through the administration of medicine. Dentistry, on the other hand, does more.

It is restorative. Let me illustrate: You cut off the arm for the purpose of maintaining the life of the patient. But if you put on a wooden arm, that is not medicine; it is something else. Part of a tooth is lost, we restore it, that is dentistry. It is something distinct, something apart from medicine—it is a great profession.

(The resolution was then voted on by the society, as amended, and carried.)

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held Monday, May 18th, in the dining-room of the Sherman House, with the President, Dr. Fred B. Noyes, in the Chair.

Dr. R. B. Tuller read a paper entitled "Pressure Anæsthesia."

Dr. L. O. Green read a paper on "The Use of Local Anæsthetics."

DISCUSSION.

DR. EVERETT X. JONES:

I have used pressure anæsthesia for some time, and the first experience I had with it I used carbolic acid with the rubber plug. Recently, since Dr. Tuller's instrument came out, I have used cocaine solution, and in each and every instance I have had good success.

I think that a great many dentists who have used pressure anæsthesia have not confined their anæsthetic properly; and I do not see any reason why, in most cases that come to the office, if the anæsthetic is properly confined by taking enough time to do so and forcing the anæsthetic into the tubuli, one cannot save patients a great deal of pain, and himself a great deal of time.

DR. J. G. REID:

I think there is no question but what pressure anæsthesia can be utilized to advantage in all of the cases in which it can be applied. But I do not believe, for the removal of pulps, it is a safe practice to follow universally—to attempt to remove pulps of teeth under pressure anæsthesia. We know how difficult it is even to remove pulps that have been destroyed by other means, that have been allowed to rest from the escharotic agent for several days. I do not think it is safe to fill the roots of teeth from which pulps have been removed immediately under pressure anæsthesia. I say this because of my own experience, and I do not believe that I am any better or worse as a manipulator, so far as the removal of pulps is concerned, than many of you present. I have tried these various processes, and I do not believe it is good practice universally. I am willing to admit that this can be done successfully in some cases. We can select certain cases in which this method can be used with reasonable success, but even in the most favorable cases I do not believe it is good practice. I speak more from the standpoint of danger and the unreliability of removing pulps in toto by this method.

Dr. L. O. Green:

Up to the present time I agree fully with what has been said in regard to the immediate removal of pulps by pressure anæsthesia. Undoubtedly many dentists fail to get the desired results because they are not persistent enough. Take the anterior, one-rooted tooth, it is a simple matter to obtund the pulp and remove it immediately, sometimes in three minutes, sometimes less. Occasionally it takes a longer time. Even if you have hemorrhage following the removal of the pulp, I do not see any reason why it is not good practice. It is unnecessary to fill the canal immediately. In molars and bicuspids it takes longer to remove the pulp by this method. I have had failure in some cases from pressure anæsthesia, or rather I was not getting the desired results, but after trying again patiently I have succeeded repeatedly in obtunding pulps and removing them without pain. I believe it is better practice than to follow the old method of treating and removing pulps, inasmuch as you do not run the risk of arsenical poisoning when you remove the pulp by pressure anæsthesia, providing you use the proper antiseptic solution while in the act of producing pressure anæsthesia. You are then rendering the cavity and root canal aseptic. In the past, teeth have been over-treated, and we have had some bad results arising from it. In my recent practice I have had the most complete success from pressure anæsthesia.

Dr. D. M. Cattell:

I object to a man getting up on this floor and saying that he does not believe this and he does not believe that, and giving us no reason for it. I prefer reasons for things, and Dr. Reid did not give us one.

DR. REID:

I did give my reasons plainly, and I want that to go in the record, too.

DR. CATTELL:

I have not had as much experience with pressure anæsthesia as many, probably, but what little I have had convinces me that it can often be used to good advantage, and I am using it more and more in my daily practice.

I wish to refer to one point in regard to filling canals immediately after extirpation of the pulp. Where a pulp has been removed under influence of pressure anæsthesia, and one removed immediately after death by the action of arsenic, I cannot conceive of any difference why one may be filled and the other not. I can conceive of no difference in the conditions between the two at the apex of the root. I do not think it is good practice to fill a root canal immediately after extirpation of the pulp, whether devitalized by arsenic or removed under pressure anæsthesia, for the reason that even if it does not bleed much, there may be a weeping of the serum, and it is all but impossible to get the apical third of the canal as dry as it should be before the introduction of the filling.

I want to ask Dr. Tuller a question. I may have misunderstood him. It seemed as if he said that a pulp that was anæsthetized by pressure anæsthesia would soon recuperate its lost vitality, if the pulp was not exposed or injured by traumatic conditions, etc. And directly afterwards, I understood him to speak of anæsthetizing the pulp, but not having time to remove it, the cavity would be filled with a temporary stopping, this being allowed to remain for twenty-four or forty-eight hours, or possibly longer, then removing the temporary dressing, going into the pulp chamber and removing the pulp that was still without sensation. Now, if he can do that, it would surely be evidence that the pulp cannot recuperate its vitality as it should.

DR. R. J. CRUISE:

I think the members of the Society ought to pass a vote of thanks to Dr. Reid for his remarks, the reason for this being that if there was any virtue in his remarks at all, it was that he has stimulated us to discuss the subject. I honestly think that if Dr. Reid believes what he has said, he has either not interested himself enough to master the technique of pressure anæsthesia, or he has not given it a sufficiently long trial to do so. The only thing that looked like an argument in favor of his side of the question was the following: He said that "if we cannot remove a pulp by an escharotic, why should we try and do it with an anæsthetic?" To apply his reasoning, if a surgeon had to remove a diseased part from some part of the body, and could not successfully and painlessly do so by the use of an escharotic, would that be a reason why he should not give the patient an anæsthetic—local or general? I do not think so. We cannot always remove a pulp with an escharotic; I often had to apply arsenic again and again, and what led me to study the technique of pressure anesthesia was failure in the use of escharotics in a few cases. I use arsenic occasionally, but I use pressure anesthesia now a good deal more.

As regards the results from immediate root filling, after the use of pressure anæsthesia I believe it to be a mistake. In my own experience (and I believe it is the experience of some others) the cause of failure where pressure anæsthesia is followed by immediate root filling, is the development of some abnormal condition at the apex as the consequence. It is my practice to place a sedative in the root canal for a few days after removing the pulp. We know just what we have done after using pressure anæsthesia; because we remove the pulp in toto in a satisfactory manner. Very often, where we use arsenic, we remove it piecemeal, and we have pericementitis following, as we are very liable to force some matter through the end of the larger canals, and in my own practice I have not had as many sore teeth since using pressure anæsthesia as I had before.

As regards local anæsthetics, I believe in their use, but I believe, as Dr. Green has forcibly said, the secret of their success is the use of a properly prepared drug and the care taken in its application. We must thoroughly cleanse the parts with an antiseptic before we insert the needle; we must be sure that the needle is thoroughly sterilized, then with the proper application of our local anæsthetic we will obtain good results.

Dr. J. E. Hinkins:

I have used pressure anæsthesia with some success, but have had a great many failures. It is possible that some of my failures may have been due to imperfect technique, but I believe with common sense and good judgment one can use pressure anæsthesia with considerable success in suitable cases. It can be used in the six anterior upper teeth with fair success. I do not believe in immediate root filling in any of the cases after pressure anæsthesia. When a man says that he can remove the pulps from the buccal roots of molars with pressure anæsthesia or the pulp in the anterior canals of lower molars, I am inclined to think he is a little indiscreet. I have watched this for the last five years in clinics all over the country. After removing the pulp under pressure anæsthesia, if you introduce a Swiss broach into the anterior root canal of a first lower molar, you will get a response. The same is true of upper buccal molar roots. I have not been able to get a barbed broach into these canals, but some dentists say it can be done. I do not think one can introduce a quarter-inch probe into one-eighth of an inch hole. I have watched Dr. Tuller and others, and I find if they take a fine broach and insert it into these canals, it will make the patients wince, especially if one waits for half an hour.

Dr. Don M. Gallie:

I am one of those who believe that there is a happy medium in the use of pressure anæsthesia.

The papers that have been presented this evening are interesting and instructive. They are very beneficial, if for no other reason than to elicit a discussion which will benefit such men as my friend, Dr. Reid, who, I trust, will try to accomplish in the future what the essayists have done with pressure anæsthesia. I am not as enthusiastic in regard to pressure anæsthesia as some of the gentlemen who have spoken, but I can see that there is a place for it. I believe in the upper anterior teeth we can use pressure anæsthesia to better advantage than arsenic, and get as good results. My experience with it in the few cases in which I have used it has been that I have had considerable hemorrhage, but I have likewise had hemorrhage from the use of arsenic. If necessary to immediately fill the root of a tooth, I feel safer in removing the pulp with pressure anæsthesia than I do with the use of arsenic. If the pulp has been entirely removed, there is no reason why, if the conditions warrant, there should be any likelihood of trouble arising from the fact that the root canal is immediately filled, provided hemorrhage is checked, and we do not have weeping, such as Dr. Cattell has described. If the anæsthetic is going to permeate the pulp and anæsthetize one part of it, I believe the effect of the drug will penetrate the tortuous canals, as well as straight canals, but it requires considerable time to do it. The trouble with some of us is that we are in too much of a hurry. In a comparatively simple case we are too anxious to get over that disagreeable part of the operation. In some teeth, where I have attempted to remove the pulps by pressure anæsthesia, there has been considerable soreness, and I am satisfied it was due to the fact that I was not able to remove every particle of pulp tissue from the tortuous canals. The particles of pulp tissue can be removed at a subsequent operation. We must bear in mind, too, the danger from the use of arsenic in a canal after a part of the pulp has been removed. Sometimes we are not successful, but we can achieve success in the removal of these pulps if we take time, use sulphuric acid, enlarge the canal, and cleanse it thoroughly. Pressure anæsthesia has been a help to me in emergency cases with severe toothache. The application of arsenic in such cases does not always afford the relief needed, but cocaine pressure anæsthesia is an excellent thing, in that it gives relief in cases that would otherwise suffer for a long time.

In regard to the paper on local anæsthetics, I must confess I am becoming gradually switched into line with reference to them, but formerly I was opposed to them. Recently, I have had occasion to use them a good deal, and I must say I have had good success.

Careful preparation is necessary in using local anæsthetics, also in using hypodermically any drug, and since I have been extremely careful I have had no sloughing of the gums. There are many cases which come to us in which we are called upon to do the work ourselves, not only cases of extraction, but the lancing of abscesses, and it is a pleasure when we can do these things without inflicting pain.

I saw a case the other day that was treated by one of our best surgeons; he used nothing but cocaine solution, and he had a hole in the superior maxilla large enough to admit a good-sized finger. He used this as a local anæsthetic, and got splendid results after having the patient under complete control. He is a very careful operator, and said if he felt there was any danger in using the drug, he would not use it.

Failures occur from the use of local anæsthetics because the necessary care is not used in giving the anæsthetic, nor in sterilizing the part or parts previous to anæsthesia. For the past year I have become converted to the use of local anæsthetics. I do not inject a large amount of the anæsthetic as some do, but use a weak solution, carefully prepared, and since doing this I have yet to have a single unpleasant experience.

Dr. W. H. Fox.

I have used pressure anæsthesia to some extent, but without uniform success. Others who have used it seem to get results in a shorter time than I have succeeded in doing. I will try to explain the method and see wherein I am wrong. I use crystals of cocaine dissolved in ether or chloroform, apply some soft gutta percha or base-plate rubber; upon that I use ordinary pressure. I do not understand that the drug proper is forced into the dentinal tubuli and into the pulp tissue. I cannot understand how that can take place, because the pressure would have to drive all the contents of the dentinal tubuli into the tissue of the pulp and force some of the pulp beyond the apex. The anæsthetic condition is reached by the susceptibility of the protoplasmic nature of the tissue to drug action and in particular to the action of cocaine. The irritability of protoplasm is lessened and the diminished sensation transmitted along the nervous tissue. In some of the teeth, where the vitality of the patient is very good and strong, we will find that application of the drug has to be repeated several times to get through the dentine, and to reach the pulp; later, by applying the drug to the pulp proper, we will succeed in obtunding only a small area of it, then by removing the obtunded portion we make further progress, and so on until step by step we reach the apical foramen. Those cases are the worst, I think. When I enter the pulp chamber, I pass a smooth broach as far as I am able to do so, wrapping a few strands of cotton around it, dipping it into the solution and passing it up beside the pulp I succeed in obtunding that pulp much better than by applying the solution externally to the part alone. In this way I have succeeded much better in accomplishing the desired result than by applying it in one spot all the time. I have not succeeded in getting the working time down to as short a period as has been mentioned by some. On that point I would like to get a little more light.

Dr. L. O. Green:

I think the main reason why the doctor did not succeed with pressure anæsthesia was because he let go too soon. At first I did not always obtain the desired results. If you will change the pledget of cotton, which is saturated with the anæsthetic, quite often, and use extreme pressure, removing it, re-saturating it again, and applying it, you will get the desired result.

I neglected to mention the fact in my paper that Dr. MaWhinney kindly loaned me some samples of cocaine. One sample is dissolved in sterilized water, that is, a four per cent solution of cocaine (Merck's cocaine), and two other samples, one the oil of peppermint and the other oil of cloves. These samples are brought here to bring out the fact that cocaine in the essential oils will not deteriorate as it will when it is dissolved only in sterilized water. These samples have been standing for two years. I will pass them around so that you can see the sample of cocaine that has been dissolved in water, which has deteriorated, and those which were put in the essential oils are perfect to-day. Cocaine does not deteriorate when dissolved in the essential oils, but it does when dissolved in sterilized water.

Dr. George W. Cook:

I wish to say a few words with reference to immediate root filling after pressure anæsthesia. Someone (I do not remember who it was) showed me a tooth in which he had used pressure anæsthesia and had immediately filled the root. The tooth became very sore and painful. He attempted to remove the root filling and failed to give relief. The tooth was finally extracted, and he found that the filling material had been pushed through the apical end of the tooth. It seems to me that one case emphasizes the importance of not resorting to immediate root filling after pressure anæsthesia, because you have the parts anæsthetized, and are very likely to carry the filling material beyond the apical end of the root, and consequently fail. I think that is true in the great majority of cases where immediate root filling follows pressure anæsthesia.

There are a great many points that have been brought out in these papers that should be discussed. They are interesting points.

With regard to the solutions, Dr. MaWhinney and myself experimented, as many of you know, a good while on local anæsthetics, and their systemic effects. One of the advantages of a cocaine solution is to hold a large amount of cocaine in solution in a substance that will not allow it to deteriorate, and, at the same time, have it incorporated in the substance so as to cause no trouble after its injection. It seems to me, from experiments and from clinical experience, that cocaine, if combined in some way with nitroglycerine, can be used in almost any quantity apparently without any danger, and I believe it is possible to have an almost perfect local anæsthetic.

In regard to pressure anæsthesia, Dr. Fox touched on one very important point, namely, the pressure anæsthesia permeating the dentinal tubuli and anæsthetizing the parts. We know that there are certain structures of cell protoplasm that take up certain agents, like stains. A certain part of the cells will stain well with one agent, and another part will be stained with another agent, so that it is true, when cocaine is used, or a combination of cocaine, under pressure anæsthesia, it is carried through in the same way that the protoplasmic structure takes up a certain part of the ions of the solution, and the pulp becomes anæsthetized in that way.

Dr. J. P. Buckley:

I did not intend to discuss these papers. I wish to correct a statement, however, made by Dr. Green, that cocaine will deteriorate in a solution of distilled water, producing this growth in the solution which he exhibited. If any of you have a bottle of distilled water in your office that has stood for six months, take it up in the morning, shake it, and you will find the same growth in distilled water that is in this solution. So the statement is erroneous that cocaine will deteriorate, producing this growth, when in solution in distilled water. The reason we do not have the same condition in the oil of cloves and oil of peppermint solution is not that they keep the cocaine from decomposition, but the essential oils have kept the distilled water sterile and have prevented a fungous growth from taking place in these solutions.

Dr. L. O. Green:

It is a well-recognized fact, I think, that cocaine does deteriorate in sterilized water and that you will get a precipitate from the sterilized water. These three samples which I have here were put up by Dr. MaWhinney two years ago. They were all of the same per cent and were put up at the same time. I would like to ask Dr. Buckley if it is not a fact that cocaine will deteriorate in a solution of sterilized water, when it will not deteriorate when it is dissolved in the essential oils?

Dr. Buckley:

I will say no, Mr. President, the temperature being the same.

Dr. Tuller (closing the discussion):

I did not enter into any argument in my paper with reference to immediate root filling. That is a matter left entirely with each operator, of course. He must do as he thinks best. I have practiced immediate root filling in many cases, first because I feel that when a perfectly healthy pulp has been entirely removed and hemorrhage is controlled, there is no time when the canal is so thoroughly aseptic. We will have the same trouble, I think, no more and no less, than when we have failed to remove the entire pulp by the old arsenical method of getting the pulp out without pain. One must use every precaution in any case. I will venture to say that we have all had our troubles with arsenic, both in not killing the pulp in its entirety and in not being able to get the last fragment of it removed. I believe any successful method of pressure anæsthesia is far ahead of the arsenical treatment from all points of view, not to overlook the time saved to both operator and patient.

Dr. Reid told us what he believed. He believed this and believed that. I failed to note any reason given why one should not use any cataphoric method for the immediate and painless removal of a pulp when the necessity of removal is indicated. There are some failures to produce perfect and complete anæsthesia in certain cases, due sometimes to abnormality in the tooth and more often due, very likely, to lack of manipulation or perseverance in continued pressure; but any other method has its failures recorded as well.

Dr. Cattell did not correctly understand my paper. I made a distinction in regard to pulps which were but slightly influenced by an anæsthetic agent and those thoroughly charged with it, doubting if the latter resume vital functions. In the one case we anæsthetized through the dentinal tubuli and but slightly, but in cases of exposure we endeavor to surcharge the pulp. In the cases I related where I pressed gutta percha in hard upon the exposure, I did it with the thought that it would perhaps insure no return of vitality. Perhaps there would be no recurrence of sensitivity in the pulp if I had done nothing more than seal up the cavity in the usual way—or even if I had not sealed it at all. I have not had an opportunity of observing all phases of the subsequent action of a pulp after being vigorously cocainized under pressure. Most of the pulps, you understand, are immediately removed. In some cases when the operation of removal has been prolonged through some difficulty of getting into roots I have found sensitivity in some of the extremities of some of the roots. I felt, however, that I had failed to carry the cocaine far enough instead rather than that vitality was returning. In such cases I repeat the cocaine treatment.

I spoke of forcing an anæsthetic agent through the dentine or dentinal tubules and influencing the pulp. I do not imagine that there is any displacement of tissue as suggested by Dr. Fox. It is simply infiltration through the tissue, and I imagine it goes much as coloring matter diffuses through water without seemingly displacing anything. It must be kept in mind that but a minute quantity penetrates—not a lot injected as with a hypodermic in soft tissues. It goes in positively and surely, and why not with a pressure of possibly 1,000 pounds to the square inch.

I have been asked about the cocaine solution I use. I will say from one per cent to a saturated solution.

Dr. L. O. Green says he gets all the results I claim with one per cent, which is in acestoria. I often take two or three drops of distilled water on the slab and drop in a few crystals of cocaine; or what is more convenient for me, I take a few drops of acestoria and add a few crystals of cocaine. Acestoria is perfectly aseptic.

Someone asks about filling the tip with cocaine solution. I advise using a little pellet of cotton saturated with cocaine, but the tip works as well without the cotton. If I want to refill tip the cotton draws the fluid up in and I don't have to use both hands. To get fluid in without cotton it must be worked in with a small point and air worked out.

INTERNATIONAL DENTAL FEDERATION, MADRID, SPAIN, 1903.

Commission of Instruction—Technical Instruction for the Student in Dentistry.

By Professor Michel Giuria, of Genoa.

On several occasions I expressed the idea that, in order to determine in the best possible manner the much debated question of dental instruction, the qualification to practice it should be conferred only on those who are Doctors of Medicine and Surgery. I believe it would be out of place here to set forth the reasons so often stated of the necessity to consider odontology as a branch of medicine.

To-day I will add precisely what the Minister of Public Instruction of Italy, Mr. Nasi, by a royal ordinance of the 13th of March, 1902, has decided it shall be, and is as follows:

"Practice schools for improvement for diseases of the mouth may be placed in universities.

"Only Doctors of Medicine can be admitted to membership in these schools.

"These schools are in charge of official professors, private teachers, or even teachers who are not professors of the university.

"Teaching professors only constitute the council of the school, which is managed by the titular professorship from whom it derives its name.

"These schools may be established with the consent of all the professors who should take part in it. The latter should make a request concerning it to the Minister in accompanying it with a rough draft of the interior regulations and with a declaration that they possess all the necessary means to carry out the object in view in regard to personal instruction and to material.

"The studies in these schools shall last during the regular academic year. The courses carried on there may be blended with the courses of the faculty, but it will be reserved for the registered students only to have at the least but one hour a week.

"The school board may, after consultation with the faculty, dispense with registered, laboratory and diploma fees.

"In regard to these academic fees the aspirants for a special diploma will be considered as auditors. Of the fees paid by those who perform duties or other services, one-half shall go to the school fund. The other half will be used to remunerate the instruction professors, the assistants and the domestics.

"The school gives a diploma, signed by the director of the school and the rector, and a certificate of the marks obtained when examinations are established.

"The school's aim is practical improvement."

That being granted, I declare formally that not only do I approve the establishment of these practical schools for diseases of the mouth, but I believe that the Minister of Public Instruction of Italy would wish to complete the work so wisely and so opportunely undertaken by endowing these schools.

In the meantime, I have the pleasure of being able to announce that my efforts to establish in Genoa the first practical Italian school for improvement in diseases of the mouth have already come to good results.

I am, however, of the opinion that it is necessary to simplify instruction as much as possible, and, by decreeing that physicians or medical students alone can be admitted to the school we complicate things by compelling these young people to present certificates or diplomas in preparatory studies, all in running the risk (the authority once given, one finds the means to get round it) that there will be candidates with their parchments perfectly in order but who have not followed the complete courses we require.

Technical instruction, according to my ideas, includes:

1st. Extractions.

2d. Operations.

3d. Prosthesis.

I arrive immediately at the following conclusions:

1st. It appears to me that, for admission to the school, technical preliminary instructions should not be required, either theoretical or practical. It would be all the better for the professor and for the student if the latter, in presenting himself, should already possess a knowledge of the elementary principles of technics.

2d. Theoretical instruction should be on an equal footing with practical instruction, and it is not proper to make a useless division and perhaps a dangerous one, too.

In regard to technical instruction, I propose:

1st. The extraction of teeth together with pathology and oral clinics during an hour every day (four half years).

2d. Operations on the teeth three times a week and two hours at a time (four half years).

3d. Oral prosthesis every day and at least four hours a day (four half years).

In Italy, at the University of Genoa, instruction in odontology has been in existence for several years for future Doctors of Medicine, but it was unable and it cannot have a practical foundation because too little time is devoted to it, and taking into consideration what should be given to it, it is already much, if the professor, after a rapid explanation of the subject, finds the means of giving a rapid idea of the practical and technical part of it.

In regard to the new practice school for diseases of the mouth, it has not yet commenced its functions, but we hope it will be in operation by the next school year, and I have only to outline the plan of the program and not what the experience of the school itself could suggest to me.

I do not deny that by obtained results one might be able to introduce some modifications or additions, either in relation to time or in relation to the subject.

It would be superfluous for me to insist on this fact that, when the students are physicians, the program may be simplified without injury to the subject, and I have also kept count of what is being done and what always has been done in schools of dentistry of other countries for Doctors of Medicine in which they are permitted to pass an examination after a single year of studies, and sometimes at the end of a shorter period. I consider that two years are necessary; nevertheless, I am bound to limit instruction to one year because, for the time being, the rules which I have laid down do not permit me to do otherwise.

It will appear, perhaps, to some of the members that these statements regarding the school of practice for diseases of the mouth are inconsistent. I reply that the Federation is already engaged with the actual condition of dental instruction in several countries, and that I, who have written only on Italy, have not spoken of this school because it is not yet in existence, not even in the by-laws of the Faculty of Medicine and Surgery.

Madrid, April 23, 1903.

REPORT ON THE QUESTIONS TO BE PUT BEFORE THE MADRID MEETING, APRIL, 1903.

By Professor Dr. Jos. Arkovy, Budapesth (Hungary).

At the Stockholm meeting last August the technical teaching of dental students has been fixed as a question for discussion for the present (Madrid) meeting. In the following lines I shall have the pleasure to give my opinion about the question.

The main subject is subdivided into two parts and these again into particulars. I shall give my report separately on each of them; but I am obliged to confess in advance that I do not agree with this method of putting questions before a meeting as it has been done in the communication of the program. We will see that there are subjects amongst the particular questions partly which do not belong to technical teaching at all, as for instance: "Some operations (gold fillings and extractions), etc., partly there are such which cannot be considered as fitting into the frame of an international or of any meeting at all, being of such nature as concerning directly and exclusively the personal teacher, and being this way subject to free teaching (Lehrfreiheit), which has to be maintained at any rate in a high school where more or less, but anyhow, science is taught. Such particular questions are in the program No. 2. "a. Theoretic; b. Practical," and the same may be said about "B—order in which these subjects should be taught."

Even a third point of criticism has to be exercised on item of program No. 4, "The number and duration of each course," which is equal to one of the questions which were already under discussion at the Stockholm meeting.

Now, if there are so many faults to be found already with the questions to be put before the meeting, how can a successful discussion be expected? I do not know.

Undue questions, confounding topics and repetitions are, as a rule, distinct signs of mental poverty. I am afraid the "Federation Dentaire Internationale" will die of that disease.

Nevertheless, as a member of the Educational Committee, I shall do my duty in answering the questions put before us.

First question—"Technical preliminary instruction on entering the school."

Particulars are required as to the pupilage and as to theoretical and practical preliminary teaching before entering the school.

As far as I know, the pupilage has been in use ever since special dental studies have been going on in England and its colonies, and in an optional way in Germany. The national reporter of England is competent to give his opinion on the experiences made on the pupilage. As far as I am informed, there were very earnest doubts brought forward against the value of the preliminary pupilage in England as well as in Germany. It must be considered as self evident that a private practitioner never will be a complete substitute for a professor of any regular school; and therefore, in my opinion, this system of pupilage ought to be abandoned wherever it exists.

Now comes the question where the pupil has to acquire his preliminary knowledge and training?

The answer is 'very simple: Either a special preliminary technical school, properly conducted and fitted up, has to impart to the pupil the preliminary requirements in odontotechnics, or the regular schools, viz., colleges or universities with their dental institutions connected with odontotechnical laboratories as an integral department, have to do that service. I believe the last is the better way.

How the theoretical and practical elements are to be imparted to the pupils is again a personal question of the teacher; neither this plan of teaching, nor the "Subject of this instruction—properly speaking, 'technical instruction,'" can be subject to discussion. There are teachers, lecturers and professors who are teaching odontotechnics, even these men are very different in their own education, erudition, etc., and there is no power in the world which could make a prescription to be followed by them in their teaching. If such a difference is already in the teaching body itself, how could it be expected that the teaching could be on the same level everywhere?

This same may be said about question "B," item No. 2, concerning the "Ordre."

As science is progressing, every teacher or professor will pick up of it as much as he is able to do; a system which is good to-day may be abandoned in six months. The source of acquiring his own knowledge is literature, and literature will answer from time to time and in different ways to the questions under head No. 2. To think that a meeting could settle these questions under consideration is an amazing mistake.

Item "C," "The number and duration of each course," is a question which has been answered already during the Stockholm meeting, and I take the liberty to refer to my report, which pointed out the following particulars about the course (lectures) to be required in Odontotechnics.

Enclosed a reprint of my reports; in the Stockholm one, the red underlining concern the present odontotechnical subject.

I. Education in the Specialty of Dentistry (Stomatology) (Abstract)

Composition, Duration and Order of Studies	I	Propedentics	1 .... 2 Odontotechnics Propredentics	Odontotechnics Metallurgy	Number of Semesters 1
	II	....			
	III	....			
	IV	Odontotechnical Teaching	(a) Lectures on Odontotechnical Systems (b) Lectures on Odontorthopedic Systems		2 for Medical Students 4 for Dental Students
			(Inclusive Plastic Restitutions).		1
			(c) Odontotechnical Clinics..............		1
	V	....	Odontotechnical Laboratory Training in (a), (b) and (c)		2 for Medical Students 8 for Dental Students

II. Plan for Dental Students in Stomatology.

	I YEAR	Lessons Per Week	II YEAR	Lessons Per Week	III YEAR	Lessons Per Week	IV YEAR	Lessons Per Week
I SEMESTER	Physics	4	....	....	....	....	Lectures on Odontotechnical Systems	1
	Chemistry	5	....	....	....	....	Odontotechn. Clinics	6
	Odontotechnical laborat. training	5	Idem ..	12	Idem	1 2	Idem	12
II SEMESTER							Lectures on Odontotechnical Systems	1
	Physics .... Chemistry	4 5	....	....	Odontotechnical Metallurgy...	1	Lectures on Odontorthoped Systems...	1
							Odontotechnical Clinics (2x3).....	6
	Odontotechnical laborat. training	5	Idem ..	1 2	Idem	12	Idem	12

III. Plan for Medical Students or M. D.'s in Stomatology.

I SEMESTER	Lessons Per Week	II SEMESTER	Lessons Per Week
Metallurgy............................	1	Lectures on Odontotechnical Systems	2
		Lectures on Odonthorthoped Systems....	1
Odontotechnical Laboratory Training..	12	Odontotechnical Clinics	2
		Odontotechnical Laboratory Training....	12

Particular question "D" is a confusion by itself, as far as the subject under discussion is odontotechnics, and this point is talking of "operations," "aurifications, extractions."

Properly speaking, it cannot be answered at all. Should the meeting still enter into the discussion of this item, then I refer again to my educational plans reported at the Stockholm meeting.

REPORT OF THE AUSTRIAN DELEGATION.

Submitted at the Session of the I. D. F. at Madrid, in April, 1903.

By Drs. Rudolf Weiser and Otto Zsigmondy.

At the last session of the F. D. I. at Stockholm, in August, 1902, relative to instruction of students in dentistry, it was decided that their academic studies should be the same as those that are required of students of medicine or of law in countries where schools are under the direction of the state or the equivaalent of these studies in countries where state supervision fails to exist. In the latter case, it would be the duty of the Minister of Public Instruction to decide the equivalent.

In regard to the question of knowing what rules physico-scientific and medical would serve as a basis of instruction for the student in dentistry, the following solution laid down by a sub-committee was adopted unanimously, namely:

1st. Natural philosophy.
2d. Chemistry, metallurgy included.
3d. Anatomy.
4th. Histology and the theory of evolution.
5th. Physiology, as well as physiological chemistry.
6th. Bacteriology.
7th. Materia medica and therapeutics.
8th. General pathology.
9th. General surgery.
10th. Medical diagnosis.
11th. Special surgery, including with it anæsthesis.

The commission of instruction of the Congress of Madrid should establish a plan of studies for special dental instruction.

After that we, the Austrian dental delegates, hope to be able to take part in the Madrid discussion on the subject of elaborating a plan of studies which will consider with same care:

(a) Operations that constitute, in their entirety, dental therapeutics, conservatory and destructive, as well as orthodontia.

(b) Prosthesis that replace the parts that have disappeared.

Having, as already stated, in regard to the way in which Austrian dentists consider dental art as a branch of surgery, in 1902, presented a detailed plan of special studies comprising a period of two years for Austrian physicians who may desire to devote themselves to the dental art, we do not deem it necessary to present a new report.

But, to our great astonishment, we saw ourselves placed, through a communication from the F. D. I., before a program which appears to anticipate in a criticising manner the evolution of a liberal discussion.

In the first place the question of technical preparatory instruction is laid down in this program, and in an explanatory note, relative to this point, we are even invited to express our sentiments on the opportunity an apprenticeship offers.

As far as we know, this apprenticeship has not as yet been experimented with in any country unless it be in England; and for another reason the American dental schools in particular appear never to have thought it an absolute necessity.

Now, granting the resolution taken by a large majority at the meeting in Stockholm to raise the social level and the instruction of students in dentistry by more profound preparatory studies, the question of creating such an apprenticeship should of necessity be abandoned for the want of the necessary time to devote to it.

But we are also of the conviction that a corporate body that fosters the design of ameliorating its condition and who, by chance, should be confronted by the alternative of knowing whether it would prefer as a basis special studies extending through a period of four years of thorough scientific preparation or the apprenticeship in question, it would not hesitate long in coming to its decision.

In regard to the second point of the program, may we be permitted to make the remark that we deem it entirely judicious to ascertain the variety and number of the technical studies and the work to be performed during the course of studies; we also believe it to be our duty to insist on the danger that one would run in wishing to obstruct the liberty of instruction in the different schools, and in the special institutions by too strict and narrow precepts. These precepts will not fail to be followed by others, granting their narrowness, in bestowing an irksome character on the students and thereby giving place to regrettable errors.

We rejoice in being able to conclude this report with the declaration that our efforts for the improvement of instruction in the art of dentistry in Austria have been received with much favor, as much so by the faculties as by the government.

The petition we addressed to the government with the object of procuring sanction that proof of special studies of at least two years' duration followed by an examination successfully passed, should be required of authorized physicians who call themselves dentists and wish to practice as such, has been taken into consideration, although a year of special studies only followed by an examination was provisionally proposed. It will be the duty of dentists, in conformity with the decisions of the International Dental Federation, to give neither rest nor truce till the second year of studies be uniformly obtained. It is completely and absolutely necessary.

We have to signalize a success of no less importance in the decree of the Minister of the Interior, which was called forth by the action of our delegate in the Hygienic Commission, Dr. Frank, thanks to whom the establishment of popular institutions for the care to be given to the teeth is in a good way to succeed.

REPORT OF DR. ROY TO THE COMMISSION OF INSTRUCTION.

Gentlemen—Before anything else I must thank you most sincerely for the unanimity with which you were good enough last year to retain me in my office of secretary, notwithstanding my absence from our last session. I feel the importance of this great honor and I hope I have done my best to justify it.

You know that my absence last year was due to important family reasons, which alone could have prevented me from accomplishing the duties which you have done me the honor to confide to me, and I thank in particular my friend, Mr. Martinier, for having been good enough to take my place and for having discharged the duties with so much credit. However, I must beg of you, when the time comes for the renewal of the Bureau, to be good enough to confide for the next year the secretaryship for the International Commission of Instruction to some other of our fellow members, believing that for the next year I shall not be able to assume that duty in consequence of particularly absorbing occupations during the year.

Since the last session, attended with such splendid results, at Stockholm, your secretary had a two-fold mission to fill.

First. To publish the report given of the session of 1902.

Second. To prepare the session of 1903.

The first half of this work was found in part prepared, the secretary's office having published the greater part of the reports presented before the session, but it was necessary to connect the latter, and especially to publish such interesting discussions as these reports had brought about.

It was Mr. Martinier who, in order to complete his temporary secretaryship, took charge of this work, and you have been able to see, from the bundles of manuscript you have received during his time, that he acquitted himself for the best in this delicate task.

The account given of the session at Stockholm forms this year an important volume, which is the best justification of the work undertaken by the International Dental Federation, and in particular by the Commission of Instruction.

For the preparation of our session we devoted but a limited amount of time this year, because of the short interval of seven months only which separated our session of 1902 from that of 1903, and because of the necessity that compelled me to wait for the publication of the report given last year so as to prepare the special business of each day for the present session.

Last year, at the second meeting of August 19th, it was decided, on the motion of Mr. Harlan, that the Bureau of our commission should settle the question by entering that the order of the day for 1903 should agree with that of the Bureau of the F. D. I.

In conformity with this decision the question agreed upon by the two bureaus is as follows: "The technical instruction of the student in dentistry." We thought that that was at the time one of the questions which held an important place in the minds of all those who concern themselves with dental instruction, at the same time that it appeared to us to be one of those for which international concurrence was one of the easiest to establish. We trust that this last hope will not be deceived.

I have addressed to all the titular and associate members of the commission the title of the question brought by order of the day, and at the same time a brief summary pointing out to them, for the purpose of not mistaking the discussion, the different points on which it appeared to us advantageous to see the latter carried in the reports to be sent to Madrid. I have at this moment but four reports, those of Messrs. Arkovy for Hungary, Giuria and Guerini for Italy, and my own for France. I have not been able, through want of time, to have these reports printed, with the exception of my own, a copy of which reached me this morning at Madrid, and which all the members of the commission should have by this time, together with a copy of the final decisions translated in English, the same as I had the report of Mr. Arkovy translated in French.

I should like to have made a report of the whole so as to give you a brief summary of the substance of the different reports, but the fewness of their number has not permitted me to do this work. Time will be given me, I expect, to give a reading of each one of them, inasmuch as they are not very lengthy.

As you have already been informed, we have decided provisionally on the order of the day for the present session in the following order:

1st. Adoption of the Official Reports.

2d. Correspondence.

3d. Nomination of Titular Members and of Associate Members.

4th. Address by the President.

5th. Secretary's Report.

6th. General Discussion.

7th. Examination of the question in the order of the day.
    A—Reading conclusion of the reports.
    B—Discussion of the reports.

8th. Fixing the questions in order of the day for the session of 1904.

9th. Multifarious propositions and desires.

10th. Nomination of the bureau for 1904.

In case you may deem it proper, there may be brought in this order of the day such modifications as you may consider useful.

Such, gentlemen and dear fellow members, is the work accomplished by the secretary of the Commission of Instruction since the last session. I hope to have discharged my duties during this period in conformity with the resolutions taken last year, and I have the honor to submit the present report for your approval.

REPORT ON TECHNICAL PRELIMINARY INSTRUCTION.

By Mr. Vincenzo Guerini, Surgeon-Dentist.

Gentlemen and Dear Fellow Members—Permit me to say a few words on the difficult question of technical instruction for the student in dentistry. This question is very complex, but I shall confine myself to an examination of the only point which concerns preliminary technical instruction.

Is it expedient to require preliminary technical instruction for admission to dental schools?

To this question, I think I should reply in the negative, and that for the following reasons:

It was decided last year, at the Stockholm session, that the necessary preliminary studies for admission to dental schools should be the same as those that are required for admission to medical or law schools.

Those studies, as you know, are sufficiently long and they terminate usually about the age of 18 or 20 years. We must bear in mind also that in the colleges and lyceums of a great number of countries there is no kind of manual instruction, and that the time of the pupil is entirely absorbed by the study of literary and scientific matter.

The result of this is that the greater part of these young people finish their secondary studies without having received any kind of manual instruction and without having the time to follow manual instruction, even if they desired to do so.

Now, if you claim that the student ought to receive a manual education before entering the dental school that will naturally have as a result that admission to dental schools will be more difficult than admission to the faculties of medicine or of law, for after having finished the secondary studies, the student could be admitted to the faculties of medicine and of law, but could not yet be admitted in a dental school, unless he had previously bound himself to follow a course in manual instruction.

That, evidently, will discourage, to a great extent, some young people and will cause them to abandon the idea of taking up the dental profession.

Nevertheless, if you require preliminary technical instruction as a condition to being admitted to the dental school, that will be an equivalent to a prolongation of the necessary studies to becoming a dentist. And then, according to my opinion, it would be much better to extend the period of dental studies to a duration of five years, but organize in the dental school itself manual instruction, preliminary to that of dental mechanics properly.

This prolongation of studies would permit at the same time of giving more attention to the medical part of dental instruction, which, without doubt, would be of very great advantage.

My opinion, therefore, is that the necessary technical instruction to constitute a dentist should be given entirely in a dental school, but that it would be very desirable to extend the duration of studies to five years.

TECHNICAL INSTRUCTION OF THE STUDENT IN DENTISTRY.

By Mr. Guerini.

I do not think it necessary to require preliminary technical instruction on the admission of the student to school, for it appears to me that the necessary technical instruction to form a dentist should be given entirely in the dental school.

Theoretic matter (demonstrative theoretic course) (of lectures or studies):

FIRST YEAR.

Elements of dental anatomy	1 hour per week.
Dental prosthesis.	1 hour per week.
Dental pathology	
Dental surgery	1 hour per week.
Special medical matter	

SECOND YEAR.

Anatomy and dental physiology	1 hour per week.
Dental prosthesis	

Dental pathology	
Dental surgery	1 hour per week.
Special medical matter	1 hour per week.

THIRD YEAR.

Anatomy, physiology, embryology and dental histology	1 hour per week.
Prosthesis and orthopedy	1 hour per week.
Dental and oral pathology and pathogenic anatomy of the teeth and of the mouth	1 hour per week.
Dental surgery	1 hour per week.
Therapeutics of the teeth and of the mouth	1 hour per week.

FOURTH YEAR.

Anatomy (descriptive and surgical) and physiology of the mouth and neighboring regions	1 hour per week.
Prosthesis and orthopedy	1 hour per week.
Oral and dental pathology and pathologic anatomy of the teeth and of the mouth	1 hour per week.
Therapeutics of the teeth and of dental surgery, the mouth and oral hygiene	1 hour per week.

Legitimate Odontology:

Theoretical instruction in antiseptics and in anæsthesia is comprised in part in that of special medical matter and in part in that of dental surgery.

Course in Practical Studies:

FIRST YEAR.

Prosthesis in the laboratory (preliminary manual instruction)	18 hours per week.
On the model	6 hours per week.
Preparatory course in dental surgery in the laboratory	6 hours per week.

SECOND YEAR.

Prosthesis in the laboratory (elementary course)	12 hours per week.
Dental surgery	12 hours per week.
Clinical surgery	6 hours per week.

THIRD YEAR.

Prosthesis in the laboratory (average course) . 10 hours per week.
Dental surgery ....12 hours per week.
Clinical and orthopedic prosthesis............5 hours per week.
Clinical stomatology and oral surgery........3 hours per week.

FOURTH YEAR.

Prosthesis in the laboratory (superior course) . 10 hours per week.
Dental surgery ....12 hours per week.
Clinical prosthesis and orthopedy.............5 hours per week
Clinical stomatology and oral surgery.........3 hours per week

Note.—Practical instruction of dental surgery embraces, as you know, various courses, and among other things the practice of anæsthetics, as well as special courses for gold fillings in porcelains, etc., operations.

RECAPITULATION.

In the place of requiring preliminary technical instruction on the entry to school (which is equivalent in reality to a prolongation of the duration of studies) it would be preferable to extend the academic course to five years and to organize sound preliminary technical instruction in the same dental school.

Theoretic matters of technical instruction:

Anatomy and dental physiology (during the four years of school).....................1 hour per week.

Prosthesis—Dental surgery:

Dental and buccal pathology (during the three last years) ....1 hour per week.
Medical subjects and therapeutics (during the three last years) ....1 hour per week.
Legitimate odontology (during the last year) . . 1 hour per week.

Practical matters in technical instruction:

Prosthesis in the laboratory (first year)......18 hours per week.
Prosthesis in the laboratory (second year)...12 hours per week.
Prosthesis in the laboratory (third year).....10 hours per week.
Prosthesis in the laboratory (fourth year)....10 hours per week.
Dental surgery (during the 4 school years)..12 hours per week.
Clinical prosthesis (second year).............6 hours per week.

Clinical prosthesis (third year)	5 hours per week.
Clinical prosthesis (fourth year)	5 hours per week.
Stomatology and oral surgery (during the third and fourth years)	3 hours per week.

CONCLUSION OF THE REPORT ON TECHNICAL INSTRUCTION OF THE STUDENT IN DENTISTRY.

By Professor Michel Guiria, of Genoa.

I have pointed out on several occasions that in order to solve in the best manner the question of dental instruction, it is necessary that the ability to practice it should be accorded only to those who are Doctors in Medicine and in Surgery.

I add again that the Minister of Public Instruction of Italy, by a royal decree of March 13, 1902 (laws for the faculty of medicine and surgery), has decided that it will be possible by a disposition of the personnel and means to establish in universities practical schools for improvement for diseases of the mouth for Doctors in Medicine.

In conformity with this decree I have taken the steps to found, in the University of Genoa, a practical school for diseases of the mouth.

That admitted, I do not think that for admission to school we ought to require preliminary technical instruction.

Theoretical instruction should be on an equal footing with practical instruction, and it does not appear to me that a division of opinion should exist in regard to it.

Matters of technical instruction should be, according to my views:

1st. Extractions of the teeth to be made pathologically and with oral clinics, during 1 hour every day (four half years).

2d. Operations on the teeth, three times per week, two hours each day (four half years).

3d. Oral prosthesis every day for four hours at least (four half years).

Genoa, March 20, 1903.

THE TWENTIETH ANNUAL MEETING OF THE MINNESOTA STATE DENTAL ASSOCIATION, MINNEAPOLIS, SEPTEMBER 1-3, 1903.

DISCUSSION OF PRESIDENT'S ADDRESS.

Dr. Alfred Owre:

It was an address that I liked to listen to very much. I have no doubt the president's plan of harnessing the forces of the state will work out nicely if put into the hands of a committee who will do practical work. His outline for dental organization is Utopian.

There was one thing I think he ought to have dwelt upon more than he did, and that is the question of duty. He said a great deal about what ought to be done, but he did not say anywhere in his address that it was the duty of every member of the profession in the state to belong to this association and do his share of the work in that way if in no other. It takes money to run an organization of this kind, and that is one way in which every member of the profession can work if he does not want to write papers or give clinics. I would like to say now, and I will say it every time I have an opportunity, that it is every man's duty to belong to the association, and not for professional advantages only, but for political good.

He dwelt a good deal upon the feature of reciprocity and advocated it strongly. At the same time he advises care. That is his loophole. I should like to see reciprocity in effect, but not indiscriminate reciprocity. There is another plan which will work just as well, and perhaps better, if we can get the older members to look at it in the same way. That is to institute an examination not so exacting in its character for those who have been in practice several years.

Dr. W. N. Murray:

I was very much impressed with our worthy president's address, and also with the remarks of Dr. Owre.

In regard to this matter of the local society or the district society being the foundation of the state society, perhaps it is in a certain sense. If I should disagree with Dr. Holden he might misunderstand the ground I am taking, but my idea is that the state society should be the leading society in the state, and all other organizations should merely be auxiliary. I was very much impressed with this matter a short time ago while in the state of Washington. In a certain city in the west, where there is a little local society composed of twenty members, the state society met last year. The state society was nearly bankrupt, and this little local society raised almost $120 and turned it over to the state society. I think that is the feeling that should exist in local societies throughout all states toward the state society. The state society should be the Mecca of the profession at large throughout the state, and if any new ideas or experiences are brought out in the local societies that are of particular interest, they should be reserved for the state society so the profession at large may get hold of them. I think that Dr. Holden, perhaps, has the same idea in regard to this matter that I have, although we may not express our thoughts in the same way.

DISCUSSION ON THE PAPER OF DR. R. C. BROPHY, "SOME DANGERS IN DENTISTRY."

DR. ALFRED OWRE:

Dr. Brophy's paper is one that does not call for much discussion, but so far as I am concerned it calls for a hearty "Amen."

DR. W. N. MURRAY:

It has always been a hobby of mine to reach out after young men ever since I have been in practice. I think the dangers besetting them can be, to a great extent, averted if we, as a profession, do our duty, and I think it is a duty devolving upon all of us. I wish every young man in the city of Minneapolis might have heard that paper.

DR. C. H. ROBINSON:

There is one point in regard to so large a percentage of young men making a failure in the profession, which I think is because they do not look far enough ahead. Dr. Murray should include those about to enter the profession as well as those already practicing it. I have young men coming and asking what they should do, whether it would pay them, etc. They want to ascertain whether they are fitted for the profession or not. If they are in all probability not going to make a success, they should discover that fact before they have spent the best four years of their lives preparing for it. I believe we can do a great deal to benefit young men in this direction.

Dr. R. C. Brophy (essayist):

I named as the first danger the one the gentleman has just mentioned. By taking up dentistry they make a mistake possibly at the very outset, when, if properly advised by members of the profession, they would not make that mistake. Of course, after a young man has taken up the study and graduated, and is in actual practice, it is then too late, but this great danger may, in many instances, be averted by the profession advising the young man before he takes up the study of dentistry.

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EDITORIAL.

THE USE OF DEFINITE TERMS.

It seems to take a long time to impress upon the profession the necessity of using definite terms in the description of methods of practice. Much of the writing on dental topics fails to carry its full significance to the reader on account of vague and meaningless phraseology. This is due to one of two things, either the author does not properly formulate his thought before he tries to express it, or else he has not sufficiently studied dental nomenclature to be able to use terms which will not permit of any misunderstanding of his meaning.

Then there are some terms which should have been long ago discarded from our literature, but which seem to cling to it as if there were nothing better proposed in their places. It is true that the persistence of any term in the description of technical processes is to a certain degree indicative of its applicability, and yet some very poor terms have lived longer than they should through sheer force of habit. A term is bad when it is capable of several interpretations, because it must inevitably lead at times to misconceptions.

As a glaring example of this we need only refer to such expressions as "inside" and "outside" when applied to the surfaces of a tooth in the place of "lingual" and "buccal." But one of the most common errors in recent literature relates to the compounding of words to describe two or more surfaces. We frequently see such expressions as "proximal-occlusal," which, of course, should be "proximo-occlusal."

It is not our intention to go into details in regard to terms, but merely to point out the necessity for greater care on the part of speakers and writers in their choice of words. That there is much laxity in this regard cannot be denied, and the pity of it is that the example thus set by older writers is often followed by those just entering the profession, and the confusion is thereby perpetuated. It has frequently come to our knowledge that recent graduates from colleges where great care is taken to use definite terms in teaching, soon pick up these meaningless expressions from seeing them in literature or from hearing them in conversation. Every teacher should be exceedingly careful in his choice of terms, and young men generally should be impressed with the necessity of early acquiring the habit of correct and definite expression.

THANKS.

Our readers have our especial thanks for their ready response to our request in the February number in the way of suggestions as to improvements in the reading matter of THE DENTAL REVIEW. We have received many valuable ideas from these responses, which will soon be incorporated in the journal. From the tenor of most of the letters it would seem that practical, boiled-down articles are what the average reader most desires, and we will do our utmost to supply this demand.

We have already arranged for articles along these lines by specialists in the different fields of our work, and we feel sure our readers will be pleased with the result. Send in more suggestions and we will try to profit by them.

THE EDITOR'S DESK.

BUY A HOME.

If I have a bit of advice to offer the young professional man starting out in life it is embodied in the above title. I have listened long and impatiently to the statement of many astute business men that "it is cheaper to rent than to buy," and while as a cold calculating proposition the statement in the abstract may be true yet as a matter of fact and experience it is the veriest nonsense when applied to professional men. It is often sagely pointed out that if the money put into a home were judiciously invested the income would more than pay the rent of a place of similar pretensions, but let us see what the facts are. In the first place a young professional man seldom has the opportunity or the wisdom to so invest his money that it is at the same time safe and profitable. The myriad schemes of a "get rich quick" character have all too often proved an alluring bait to absorb the earnings of nine out of ten professional men who have invested in them. It usually requires years of experience to enable a man to invest his money to good advantage, and during these years he would far better put his money into something tangible.

The buying of a home at once gives a young man a certain responsibility which he lacks if he merely tries to save for the purpose of investing. If he buys a home he constantly sees before him the incentive to save and get it paid for, and during this time he learns the value of saving. It gives him a just appreciation of money and its legitimate use. When he has his home free from debt he is by far a more responsible citizen than if he lived in a rented house, and the sense of having some place in the world where he can step his foot and say it is his very own gives him a better and surer grasp of life and manhood. With a home of his own in case of illness or temporary reverses of any kind he is not disturbed by visions of the landlord calling each month for his rent, and even when all his other plans or investments go amiss, as they sometimes do, he has the sheet anchor of his home to fall back upon, and there is no more substantial asset to be had than this. The interest in a home and the pleasure of beautifying it and making it comfortable go to make up one of the greatest satisfactions of life in a material way. By all means buy a home.

DOMESTIC CORRESPONDENCE.

To the Editor of The Dental Review:

Dear Sir—Believing that a brief explanation of the severance of the connection of the Chicago College of Dental Surgery from the University of Illinois is due the dental profession, I beg leave to request that the following statement of facts be published:

For some years the question of the desirability of having the C. C. D. S. connected with one of the larger universities of this neighborhood has occupied considerable time and attention on the part of the officers of our institution. This finally resulted in a meeting of the trustees of the Illinois State University and the officers and members of the faculty of the C. C. D. S. on the morning of Oct. 3, 1903, which I, with others, attended. So much opposition developed at this meeting that an adjournment was taken until after lunch. Believing that it would be impossible to come to a mutual agreement I did not consider it worth while to attend the afternoon session. It subsequently developed that the objections of those present were removed and an agreement was drawn up and signed by President Draper and Dr. T. W. Brophy as representatives of the two institutions. This agreement practically placed everything but the privilege to recommend in the power of the university trustees. Myself and some others objecting, efforts were made to arrive at some satisfactory compromise. With this end in view a visit to Urbana to meet President Draper and the trustees became necessary, so four members of the C. C. D. S. faculty telegraphed President Draper that we would be at the hotel the evening before one of their regular meetings and requested him to meet us the same evening. On our arrival there we were informed that he could not see us until 8:30 the next morning. At 8:30 we were told he could not see us until about 2 p. m., the meeting of the trustees being in the morning. We endeavored to have our meeting earlier so we could return by an afternoon train, but this was refused. Two o'clock came, but no trustees, 2:30 and still no word, so we telephoned to President Draper's house and were informed they were at dinner and would meet us shortly after they had finished. About 3 p. m. we finally secured an interview, and after insinuations of dishonesty against some members of our faculty and other matters had been cleared away we apparently arrived at a somewhat satisfactory agreement. A supplementary agreement was as a result drawn up by the university trustees and sent up for our signature, but upon reading this over it was found to contain a clause not mentioned in any of our discussions, and this we unanimously refused to sign.

Having heard, from what I considered good authority, that the trustees were already contemplating changes in our faculty, and objecting to the liberal policy of our institution, and having had some experience of their discourtesy and domineering ways, I concluded the only way to save our institution from ruin and maintain its high standing, was to stop proceedings through the courts. This I at once proceeded to do, claiming that the agreement had been signed without the unanimous consent of the stockholders, and that according to the State University charter, that institution had no legal right to acquire property outside of Urbana. By mutual consent beeween our attorneys the question of charter rights of the university was not passed upon by the judge, but my objection was sustained and the agreement set aside.

Respectfully, W. L. Copeland,
Prof. of Anatomy, C. C. D. S.

NEW YORK LETTER.

New York, Feb. 29, 1904.

My Dear Mr. Editor:

This past month has been one quite full of interesting dental matters, from the meeting of the "Institute of Stomatology" on the first day of the month to and including the memorable banquet in Philadelphia on the last day—making this Leap Year February an exceptional month. We give you our gleanings herewith:

The February meeting of the "Institute of Stomatology" was a sort of "Symposium" on Prophylaxis "a la D. D. Smith," if one may be pardoned such a suggestion.

After the usual dinner, at which there were some forty members and guests, the meeting was called to order by the president, Dr. A. H. Brockway. Quite a number who were not at dinner arrived by the opening hour, filling the room. The society was addressed on "Oral Hygiene and Prophylaxis," by Dr. E. S. Gaylord, of New Haven, and Dr. C. W. Strang and Dr. Alfred C. Fones, of Bridgeport, Conn. The discussion was opened by Dr. L. C. Taylor, of Hartford.

Dr. Gaylord spoke of the work of Dr. D. D. Smith, of Philadelphia, which deserved great praise.

In July of last year he had examined the mouths of about twenty-nine of Dr. Smith's patients of ages varying from 6 to 70 years, in each case finding conditions of prophylaxis beyond conception, when the statement of Dr. Smith and testimony of patients as to state of affairs at beginning of treatment were had.

He said "it continued until the examination of cases became monotonous"—but results in all cases were surprising. Dr. Gaylord described Dr. Smith's method as consisting of scaling and then systematic polishing of all surfaces by vigorous rubbing with sticks and pumice in pockets, as well as out—massaging gums—etc., etc.

Each of the gentlemen who followed, and Dr. Taylor, who opened the discussion, were present at this gathering in Dr. Smith's office, and all had become very much interested and enthusiastic. Dr. Gaylord showed celluloid strips (kodak film), which he uses for carrying polishing materials between teeth, an excellent idea.

Dr. Strang thought the subject as prolific of thought as a certain book by a clergyman entitled "Sparks from My Anvil." He described the case of one patient, who had been free from caries for thirty years, in whose mouth in six months' time a great deal of decay had occurred due to a vitiated condition of the secretions of the mouth, as well as impaired vitality. Said he had been striving for thirty-five years to keep foreign particles from the teeth by instrumentation. He agreed with Dr. Smith that teeth cannot be cleaned by the engine as well as by hand.

Young Dr. Fones gave in detail Dr. Smith's method—which had already been presented to this and other New York societies by Dr. Smith some year or two ago. He claimed that it is impossible to render bacteria inert or make a mouth sterile. He stated that a full upper and lower denture covers twenty-five square inches of surface and called attention to how readily the soft tissues of such an extent could be kept unhealthful. Said he had worked at this system of prophylaxis in a half-hearted way until the meeting at Philadelphia last July, where he saw results which spurred him on till now he is very enthusiastic. He believes that in both operative and prosthetic work dentistry has reached its zenith, but that a new field is opened in the direction of thorough prophylaxis. He spoke of colic in infants being often due to unclean mouths, and claimed that frequently for adults chronic headaches were cured by proper and thorough cleanliness of the mouth and teeth.

Dr. Taylor opened the discussion in his usual breezy way, carrying things before him with a rush. He too had "enthused" over Dr. Smith's work, perhaps to a greater extent than the other gentlemen, because of the years he has spent at the same class of work. He spoke of the plumber's use of the word "Sanitas" and the physician's use of the word "Hygiene," and said both meant sanitary conditions and results; gave the definition of prophylaxis as being "Surgical or manipulative treatment to prevent disease," and claimed that a very large percentage of disease was due to mouth infection. He described the case of a young woman of twenty-four, for whom physicians were unable to do anything, whose mouth he put in such order and cleanliness that in six weeks she was virtually a well woman. He said a great many have shown us all kinds of bacteria but not how to get rid of them. We can do "one hundred fold more good by prevention than by patching." He referred to a prominent practitioner as having said that it required more skill to properly and thoroughly cleanse and polish the teeth than to perform the operation for appendicitis.

Dr. F. Milton Smith, of New York, said that Dr. D. D. Smith succeeds better than any man he knows or ever heard of. His system of cleansing is one of the grandest things which can be done for our patients, but he does not believe it can be done thoroughly without the use of the dental engine. He believes that we must use everything we know of to accomplish the object.

Dr. A. H. Brockway said there seemed to be no difference in the gentlemen's methods, except in degree. Spoke of the use of thin ribbons of copper, of dental fibre and Toucum fibre for polishing between the teeth.

Dr. Fones said that as one swallow does not make a summer, so one cleansing is not prophylaxis—the work must be continued.

Dr. Dorsay, of the Skin and Cancer hospital, spoke of how he had the children under his care interested in what he termed the tooth brush game, and felt that it was doing very much to educate them.

The Second District Dental Society, commonly known as "The Brooklyn Society," met for its February meeting at the Library Building of the Kings County Medical Society, in Bedford avenue, with an unusually large attendance of the younger members of the profession.

Dr. F. T. Van Woert, under incidents of office practice, presented the case of a man who was very seriously injured in the face, involving the lower jaw and the tongue, by a railroad accident. Dr. Van Woert had had charge of the surgical work, and presented the patient that all might see for themselves what he had accomplished in the way of restoration. In view of Dr. Van Woert's description of the almost hopeless appearance of things when first seen, his results were remarkable, especially so in repairing the tongue, which had been badly cut. By an ingenious method of ligating of his own devising Dr. Van Woert had been able to so unite the cut portions that one side of the tongue was no thicker nor thinner than the other and the patient could articulate well.

The paper of the evening was entitled, "An Unexpected Possibility," by Woodbridge H. Birchmore, M. D. In the end the entire subject came to a question between the essayist and Dr. R. Ottolengui, in which, from our standpoint, Dr. Ottolengui was decidedly ahead.

Dr. Birchmore dealt mainly with the possibility of infection from unsterilized instruments, and went into some minute details of what might happen under unfavorable subjects.

In discussion Dr. Russell made a statement which ought to have been vigorously combated—viz., that but very few dentists sterilized their instruments, and that measures ought to be taken to make them do so.

Dr. Ottolengui said that as Dr. Birchmore had told his side of the story it was "up to him" to give the other side. He then described how he had used new broaches in opening a devitalized tooth. Each broach was sterilized—handled with pliers, used but once, and carefully—without being touched with the hands—dropped from the holder into a tube and sealed. So that they went into Dr. Birchmore's care just as removed from the tooth. With these broaches he had removed the pulp—devitalized—from two canals. The first two, with which each canal had been cleansed of pulp, showed cultures. The third, which was used to cleanse out the canals after removal of pulp, showed no culture. Each was dipped in Schrier paste before using. He said that the net result he had gained from Dr. Birchmore's bacteriological investigation, using these and other instruments, was that a pathological examination would determine the probable chance of good or ill results, and that at least one of the forms of bacteria could not be destroyed so as to ensure permanent well being of the tooth.

Dr. Birchmore seemed firm in the conviction that the filth bacillus was the common cause of fetor of the mouth. The discussion closed with a general talk on various methods of treating pulpless and abscessed teeth.

On the second Tuesday of each month that old "stand by," the First District Dental Society, holds its meeting, at the Academy of Medicine, 17 West Forty-third street.

Its February meeting was to hear a paper by Dr. T. D. Shumway, of Plymouth, Mass., entitled "Acid or Alkali." Dr. Shumway needs no introduction to the dental profession, but we wish there had been a larger attendance at this meeting to hear him. His line of argument was mainly devoted to description of cases of decay which is usually attributed to an acid condition of the mouth, and by insinuation at least, claiming that a similar state of affairs may occur—does occur—under alkaline conditions. He advocated the free use of sugar by the growing child, and seemed not to comprehend why there should be so much objection to its use.

Dr. E. A. Bogue and Dr. M. L. Rhein in discussing the subject, agreed with Dr. Shumway in the main and stated that it was the excessive use of sweets—to the exclusion of proper sustenance, which actually starved the patient is a way—that was objected to.

Dr. Hart, and others, agreeing with the essayist, thought his good results were mainly due to the thorough care and cleanliness of the mouths alluded to. For Dr. Shumway had emphasized the fact that he put the mouth in order—where there was an unusually large amount of caries and general bad condition—and having done this, he insisted upon regular care and espionage.

The Interstate Dental Fraternity, sections of New York and New Jersey, had a very enjoyable dinner Friday evening, Feb. 19th, at the Hotel Lafayette.

This society seems to be organized for purely social features, and they will undoubtedly do much good. The meeting this evening was to be entirely free from dentistry, being after the banquet, an entertainment of music and recitations.

Dr. C. S. Stockton, Vice-President for New Jersey and the newly elected President of the Central Dental Association of Northern New Jersey, was responsible for the entertainment. Dr. C. A. Meeker was elected chairman, and was humorously presented with a gavel in the shape of an immense potato impaled upon a stick. After some other laughable presentations to a few members, in which Drs. W. W. Walker and R. M. Sanger acquitted themselves well as speakers, the entire company partook of a "Sunshine Cocktail," being an exemplification of one of the developments of radium, which subject was talked upon knowingly by the gentleman who represented Prof. Louis James Morton, unavoidably detained. Then followed the evening's entertainment. Success attend the "Interstate."

The annual meeting of the C. D. A. occurs in February. This year as usual the attendance was large. The business meeting occurred first, and among other things done was the election of one of the best known and oldest dentists of the state—Dr. Chas. S. Stockton of Newark—as its president. After an elaborate banquet, as is usual on the annual occasion, the retiring President, Dr. W. H. Pruden, read an address as the first thing on the program. He referred in well chosen terms to the work of this, the twenty-fourth year of the society's existence, spoke of the new members, some fifteen or twenty for the year, and said there was no field in dentistry where more good could be accomplished than in gaining new recruits on the side of ethical dentistry. Brought out strong objections to degrading and misrepresenting advertising, and ended by claiming that this society is IT, with which "we all agree."

Dr. C. S. Stockton responded to the toast, "The Era of Reciprocity," in his usual felicitous manner. His reference to John Hay caused much applause, and led to the singing of the "Star-Spangled Banner" at the close of his remarks, the company rising and joining with the soloist.

Dr. R. M. Sanger responded to the toast "College Technics." He spoke of technique as "the art of doing things"—that which lifts men above themselves, stands for something great and good, causes us to strive to do something better than ordinary men.

Queried if we really understood or realized how much environment means. While New Jersey has no dental college, it has that which is better—a dental atmosphere which uplifts and helps. Claimed that it is a privilege to live in New Jersey, where dentistry seeks and finds its highest levels.

A few weeks ago a request was made of the dental profession generally to join in paying homage to five veterans who would have completed their fiftieth anniversary of their graduation from the Philadelphia College of Dental Surgery. The occasion was to be celebrated by banqueting the five gentlemen, survivors of the first class to graduate from that college. On Saturday night at 7 o'clock, at the Hotel Bellevue, Philadelphia, took place this golden anniversary banquet in honor of James Truman, D.D.S., LL. D., C. Newlin Pierce, D.D.S., Louis Jack, D.D.S., W. Storer How, D.D.S., and Eli W. Haines, D.D.S., of the class of 1854, Philadelphia College of Dental Surgery, in celebration of the fiftieth anniversary of their graduation—February 27, 1904. It was a superb event, gorgeous, I might say, for every feature was as excellent as money could make it. As the hundred or more hosts prepared to enter the spacious dining hall of this charming hostelry they passed through an ante-room, where each who was not acquainted was introduced to the guests of honor, five still vigorous men. The beholding of these stalwarts filled me with reverence, the clasp of each hand acted as a benediction. Many an one left their presence exalted.

Analyzing the men present at this function and similar ones, they represent that class in which sentiment is prominent, who have poetry in their hearts and are votaries of æsthetics and art; but—we find ourselves in the banquet hall, from the center of which sprouts a goodly sized tree, whose branches spreading out and towering to the ceiling are laden with apple blossoms, the walls are decorated with flags, and greens and blossoms and strains of music greet one. There is no confusion as to seating—a card bearing a name is at each plate, a printed diagram was handed to each person so that they knew before entering the room the location of their seats. After the feast of good things, wines and good fellowship, Dr. Edwin T. Darby, the toastmaster of the occasion, arose. He expressed his pleasure at presiding over probably the only event of its kind in the history of the profession in the world.

Speaking of the honored guests, he said: "To have lived 50 years and preserved one's virtue and morals is a great accomplishment." His remarks were few and well chosen and closed with "joyous felicitations to these living heroes," and the introduction of Dr. Wilbur F. Litch, who delivered the address of "Welcome." It included the early history of the Philadelphia College, giving the names of the first graduating class (1854), Horton Bailey, of Pennsylvania; Wm. Calvert, Pennsylvania; Firman Coar, Pennsylvania; Alex. G. Coffin, Massachusetts; E. H. Cogburn, Mississippi; Benj. Cohen, Germany; Samuel W. Frazer, Pennsylvania; Wm. Gorges, Pennsylvania; *Eli W. Haines, Pennsylvania*; *W. Storer How, Maine; Louis Jack, Pennsylvania;* Bernard J. Laughlin, Pennsylvania; *C. Newlin Pierce, Pennsylvania*; Isaiah Price, Pennsylvania; David Roberts, Pennsylvania; John R. Rothrock, North Carolina; John R. Rubencame, Pennsylvania; Thos. W. Shaw, Alabama; *James Truman, Pennsylvania.* Dr. Litch read extracts from the valedictory address of that time, which was delivered by Elisha Townsend, M.D., D.D.S., which certainly displayed masterly qualities.

Dr. Darby in introducing the next speaker said that the second man he spoke to when he came to Philadelphia was one whose life seemed to run parallel with his for nearly forty years. There is not a truer, nobler, or more kindly man than Dr. James Truman.

Some extracts from Dr. Truman's remarks are: "Men who graduated then seem to me somewhat in advance of those who go out now." "Then there was no incentive of law, etc." "The class of '54 was fortunate in having a faculty which came up to high ideals. Let me recall. Prof. Robt. Arthur, who left social station, his practice and family in Washington to teach men dentistry. Elisha Townsend, M.D., D.D.S.; I never knew an operator who could carry through an operation as he could. J. D. White, M.D., D.D.S., who dominated the faculty and the dental profession—a power in intellect in spite of his failings. Then there was Ely Parry, M.D., D.D.S., T. L. Buckingham, M.D., and D. W. Whipple, M.D."

Becoming more prosaic, Dr. Truman saw in dentistry a profession which ran along a rivulet and touched the hem of Hippocrates, then it passed on to Arabia, and Syria, then into Italy into the medical school of Sylermo, then on to Cordova and to France, where it found a Fouchard, to England—a Hunter, Birchmore, Tomes, back to Switzerland, and then in the silence of the broad Atlantic it came into America, where it found Hecker, Hutch, Fitch, Harris, and a host of others, and now it has passed on to the Philippines, to Japan, and is battling, whirling against a half-civilized people. "I see in that spectrum a future, a greater dentistry. Progress is eternal."

With words of much esteem Dr. Darby next introduced Dr. Louis Jack, who said that when he came into the profession it was at the time when there was a dividing line between the old and new methods of instruction—the office and the college. That was in 1850. His father had previously gone to California and had written for him to follow, but he had no desire to become a carpenter, so persuaded his mother to think as he did. With the money sent him for traveling expenses by his father, he entered the office of J. D. White's brother as student, who said he would teach him dentistry in three months. Subsequently he became the first matriculate of the Philadelphia College. Became associated with Dr. Robt. Arthur in '55, and when Dr. Arthur left Philadelphia his practice fell to him, some of which he still retains, and some fillings placed in teeth by Dr. Arthur at that time are still doing good service. They were of cohesive gold.

Dr. Darby now spoke of the *first* man he spoke to when he came to Philadelphia. That was when he paid his matriculation fee to Dr. Pierce. "I looked him over and said to myself—he won't live till spring." The next day I went to get my money back or part of it, but the gentleman finally persuaded me to keep at it.

Dr. C. Newlin Pierce said he came into dentistry the 15th day of October, 1851, with Dr. F. M. Dixon, but "I got most of my information from Townsend and Arthur."

Dr. Pierce became reminiscent about members of the Philadelphia College and particularly as to his associations with Dr. Truman, of whom he said, "he will go down as a cloudless sun."

Dr. Eli W. Haines was presented next by Dr. Darby as the veteran of veterans. He is 81 years young and from Delaware. When Dr. Haines began to speak (after the applause subsided, which it should be said was loud and long and greeted each of the honored ones in turn) he was visibly affected, and he said so.

"I never stood before any body of men whom I feel more at home with, although you are practically all strangers to me, than I do to-night, but there is something about this company which strikes me here" (over his heart). "I assure you I appreciate the privilege of being here among men who do the same as I do—pick their bread and butter out of other people's teeth." The applause which followed showed that the doctor's wit was appreciated.

Dr. Haines told a good story or two and quoted from the "good book." He stated that he has been in practice since 1845. He matriculated in the Philadelphia College in '53, and the next day Dr. Townsend came to him with an appointment as demonstrator of mechanical dentistry.

Dr. Darby then introduced, after some very pleasant remarks, "the last but not least, formerly of Philadelphia, now of Cincinnati, Dr. J. Storer How," who addressed all present as Mr. Chairman, fellow alumni and confreres.

His was a scholarly address, read from notes, analyzing the D. D. S. in particular. He said that we might well be termed Doctors of Dental Substitution, and further on, after analysis, Doctors of Dental Science.

He paid a final tribute to one of his alumnus—"All hail to Dr. James Truman, Doctor of Dental Science and LL. D." (Very recently Dr. Truman has been the recipient of the latter title.)

Dr. B. Holly Smith was called upon to respond to the toast "The Mother of Colleges." He said that no nobler sentiment could be chosen for him to speak to than "my mother." "If we could remember the work of Washington and Jefferson, and then the work of Harris and Hayden."

The toast of "The Veterans of New England" was dealt with by Dr. L. D. Sheppard of Boston, who had tabulated historical facts of New England and noted happenings about 1854. He said that of the 317 subscribers to the *American Journal of Dental Science*, 30 were New Englanders.

The year 1854 was noted for the discussion which arose due to the exhibition of dental art at the Crystal Palace in New York, and it was settled at that time that such exhibitions were unprofessional. In 1854 sponge gold was introduced and the courts decided that dentists should not use anæsthetics without the presence of a physician. In 1854 J. Taft became professor of Ohio College.

Josiah Flagg was one of the first to receive honorary degree of D. D. S. from Philadelphia Dental College.

New England has to her credit the formation of dental societies in 1833.

1844—Dr. Wells gave us dental anæsthesia.

1846—Dr. Morton gave us ether.

1867—Harvard dental school was opened.

The highest niche in the temple of fame is due Dr. Horace Wells, the greatest of benefactors.

There were several periods in dentistry: First was from 500 years B. C. to 1839; second, 1839 to 1844—literature and fraternalism; 1844 to 1854, anæsthesia; 1854 to 1867, dental technique, cohesive gold, mallet and dental dam; 1867 to 1904, higher education, true professional standing, research, scientific methods and laws. The last period the "Golden Age of Dentistry."

In ushering the next to respond to toasts, Dr. Darby said the gentleman was a stranger to him, but we found it was one whom he probably loves most of all present—his brother-in-law.

Dr. Safford G. Perry, of New York, was called upon to say something about "The Pioneers of Dentistry in New York." In leading up to his subject he touched on the first dental lecture he listened to, that by Dr. Pierce in 1863, on Dental Deportment, the fleeting of time, and the operations of some who have passed. Wolfendale, he said, practiced in New York in 1766 and made the first set of teeth ever made in America, for a Wm. Walton. Greenwood, the dentist to Washington, practiced in New York. Eleazor Parmlee started in 1820 and practiced for 30 years. He said that at that time there were only five families using private carriages in New York. He bought his home at Broadway and Broad street for $15,000. The site sold a short time ago for $250,000. Dr. Parmlee was worth $3,000,000 when he died. He was in character a pure type of gentleman.

Sir Lyman Brown was formerly private secretary to Dr. Parmlee.

Then there is Dalrymple, Lovedale, Clay, Barnum, who presented most unselfishly the rubber dam, Anderson, Dunning, who succeeded Parmlee, Gunning, Dwinelle, the many-sided personality, who introduced crystal gold; John Allen, who gave us continuous gum, 1851; Varney, who showed how to perfectly restore teeth to usefulness; Atkinson, the very soul of the profession—we will never know his like again. Hawes, Bronson, Benj. Lord, who started as a coachman, but who became a power; O. E. Hill, who stood for things he thought right and people he loved.

Dr. Perry dealt with those who have passed.

The past is poetic, but if it might be permitted we would like to add a line—that there was not present on Saturday night last a nobler, truer, more manly character than Dr. S. G. Perry himself.

Dr. H. A. Smith was called upon last to respond to the "Ohio College of Dental Surgery." In his remarks he endeavored to show that dental education was an Ohio idea, inasmuch as Drs. Harris and Taylor studied medicine in that state early in their careers. He spoke of the youth of dentistry, there being really but three generations of dentists, of the beautiful tributes paid each of the graduates of 1854.

After the reading of a memorial communication from the dentists of Ohio paying tribute to Dr. How and other members of his class, also from Daniel McFarland, D. W. Huey of England, Burton Lee Thorpe (who, by the way, was stricken with appendicitis at his hotel in Philadelphia and could not attend), and expressing regrets that Dr. E. C. Kirk, who furthered the success of the 50th anniversary, could not be present, the gathering was dismissed after a few well chosen remarks by Dr. Darby.

THE BOROUGHS.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

Simple Method of Cleaning Cement Slabs.—Keep several cement slabs on hand, and after using one, place it in water and allow it to remain for a few hours. The cement can then be removed very easily. F. E. RAICHE, Marinette, Wis.

◆

Swage for Crown Cap.—Place a ferrule on the end of a piece of pine wood of proper size and use as a counter-die. After using a few times the ferrule can be forced up on the stick and the used part cut off. J. MILLS, Brantford, Ont.

◆

Repairing a Hole in a Bridge.—When a "flaw" occurs in soldering a bridge, due to a minute particle of flux, clean out the depression with an inverted cone bur and fill with Watt's or Vernon's crystal gold. A. W. THORNTON, Chatham, Ont.

◆

To Pass a Ligature Between Teeth.—In cases where the ligature cannot be passed between the teeth, place it in position and spread the teeth apart with a separator. Only a turn or two will be necessary. SYLVESTER MOYER, Galt, Ont.

◆

Power to Work an Atomizer.—The ordinary rubber bulb sold with atomizers is of very little use, as sufficient pressure cannot be obtained to produce the required spray. I use a bicycle foot pump attached to the atomizer with a piece of rubber tubing. This will be found convenient to anyone who has occasion to use an atomizer. OLIVER MARTIN, Ottawa, Ont.

◆

Finishing Strips.—Have your finishing strips made tapering, viz., broader at one end than at the other. Prepared in this way they will not engage the rubber dam so readily when finishing cervical margins of gold fillings. If the cavity extends far under the gum pull the strip through from the small end.

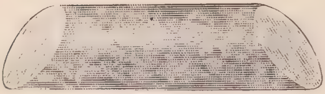
C. R. TAYLOR, Streator, Ill.

◆

Removing Difficult Roots.—Short roots which are nearly covered with gum tissue may be removed with very little pain and no laceration of either gums or process by inserting a wood screw into the canal. The screw should be about half an inch long and one-sixteenth of an inch in diameter. The projecting end can be grasped with the forceps. The use of a small tap corresponding in size with the screw facilitates its insertion.

MARK G. MCELHINNEY, Ottawa, Canada.

Preparing Cotton Rolls.—Mitre the ends of cotton rolls, as in No. 1, instead of cutting them at right angles as in No. 2. This will assist the muscles of the cheeks and the tongue in holding the rolls in place. This suggestion was offered me by Dr. W. T. Magill, of this city. R. M. Pearce, Rock Island, Ill.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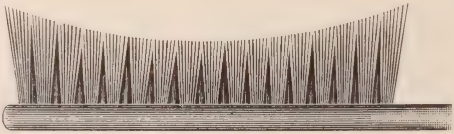
* * *

Convenient Tooth Brushes.—After instructing the patient in the use of floss silk, antiseptics, etc., I advise the use of three tooth brushes of different forms. Two of these brushes should be formed so that the bristles present a concave surface, as in No. 1. An adult or medium size, and a child's size will be found convenient. For brushing the lingual surfaces of the teeth successfully the brush should be convex in form, as in No. 2. If the patient cannot obtain a brush of this style it is easy for the dentist to trim an ordinary brush to the desired form.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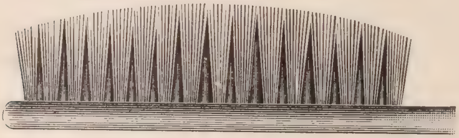
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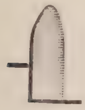
Homer Almon.

* * *

A Case in Practice.—A lady visited my office and related the following experience: Recently while away from home she consulted a dentist about filling a mesial cavity in a central. He refused to insert gold, saying that such was a "back number, unsightly, unprofessional," etc. He advised a porcelain inlay as the "only and modern" method of restoring the lost part of the tooth, and she was persuaded. The inlay which was inserted became loose in about one month. She visited him again when passing through the town, and not having time for a long sitting he inserted a cement filling to tide the case over until she could find time to have the inlay, the color of which did not harmonize with the tooth, replaced. The cement filling remained less than three hours. She is prejudiced against a porcelain inlay and dentists' assertions generally.

It seems to me that if this brother relied more on skillful work with the old methods he would injure less and help more. No matter how little time the patient had, he owed it to himself to make the cement filling secure. In the light of my own experience and observation of such methods I will venture the opinion that he is on the wrong track. Better talk less and try more to excel along well proven paths, venturing gradually into limited fields, which always lay claim to so much more territory than they can occupy. H. DARLING, Bay City, Mich.

Method of Tipping Bridge Teeth.—Prepare the tooth by grinding as is ordinarily done and burnish pure gold backing to position on the tooth, allowing the backing to project beyond the labial or buccal surface of the facing at the occlusal end, as in No. 1. Hold the occlusal end of the tooth, with backing in position, against a flat surface having a right angle corner, such as a drawer in the bracket table, the labial surface of the facing being held even with the upper surface of the drawer No. 2. The projecting gold can now be turned down till it rests on the upper flat surface as in No. 3. Burnish the gold well against the facing and contour the tip if necessary. The case is now invested and 22k plate is flowed over occlusal surface and tip as heavy as desired. After the crown is soldered grind away the gold that overlaps the edge in front, and this will produce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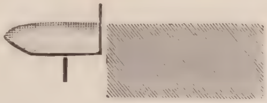
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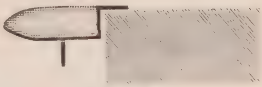
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a solid 22k tip. The same method can be adopted for bicuspids and molars in bridge work. Flow 22k plate over the whole surface of the backing, making it heavy enough to protect the facing. Make lingual cusps, articulate and attach with solder. F. S. Miller, Wausau, Wis.

MEMORANDA.

THE INDIANA STATE DENTAL ASSOCIATION.

The Indiana State Dental Association will meet in Indianapolis June 14, 15 and 16. A fine meeting is expected. Respectfully,

A. T. White, Secretary.

KENTUCKY STATE DENTAL ASSOCIATION.

The coming annual meeting of the Kentucky State Dental Association promises a dental convention of unusual interest; to be held in Louisville May 17, 18 and 19.

Members of the profession are extended a hearty welcome.

W. M. Randall, Secretary.
Masonic building, Louisville, Ky.

NOTICE TO THE MEMBERS OF THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

To those who desire copies of the proceedings of the meeting held at Asheville, N. C., 1903, it will be necessary for their secretaries to send in their names and addresses to the undersigned.

The secretary does not possess occult powers, and as the result of two notices in the journals during the year but nineteen states have responded.

Chas A. Meeker, Secretary.
29 Fulton street, Newark, N. J.

READING DENTAL SOCIETY.

The sixth annual banquet of this society was held February 4, 1904. Covers laid, thirty.

Dr. Walter H. Neale, of Philadelphia, guest of honor. Subject, "Food and Health, from a Dental Standpoint."

Election: President, W. H. Scholl; vice-president, Chas. E. Grim; treasurer, Alwood Tate; secretary, C. R. Scholl. Executive committee: Geo. Schlegel, E. W. Bohn, S. E. Tate. Society meets monthly.

THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

At the annual meeting of the Central Dental Association of Northern New Jersey, held at Newark February 15, 1904, the following officers were elected: President, C. S. Stockton, Newark; vice-president, T. Star Dunning, Paterson; secretary, H. Parker Marshall, Newark; treasurer, C. A. Meeker, Newark. Executive committee: R. S. Sanger, chairman, East Orange; W. Moore Gould, secretary, Newark; N. M. Chitterling, Bloomfield; Frank L. Manning, Red Bank; Frederick W. Stevens, Newark.

Frederick W. Stevens.

MONTANA STATE DENTAL SOCIETY.

The first annual meeting of the Montana State Dental Society was held in Helena, Mont., February 22d and 23d, when the following officers were elected for the coming year: Dr. W. H. Barth, president, Great

Falls; Dr. J. D. Sutphen, first vice-president, Helena; Dr. Jos. Oettinger, second vice-president, Missoula; Dr. Geo. E. Longeway, secretary, Great Falls; Dr. W. M. Billings, treasurer, Helena.

The second annual meeting will be held in Butte, Mont., February 20 and 21, 1905.
GEO. E. LONGEWAY, Secretary.

NEBRASKA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Nebraska State Board of Dental Examiners for the examination of applicants will be held in Omaha April 27, 28, 29, 1904.

Applications and all necessary information will be furnished by the secretary.
W. N. DORWARD, Secretary,
405 Paxton block, Omaha, Neb.

ONTARIO DENTAL SOCIETY.

The following officers were elected at the meeting of the Ontario Dental Society held in Toronto February 9 to 11, 1904: Honorary president, R. E. Sparks, Kingston; president, A. W. Thornton, Chatham; vice-president, J. R. Mitchell, Perth; secretary, Guy G. Hume, Toronto; treasurer, R. Gordon McLean, Toronto; Archivist, W. E. Wilmott, Toronto. Program committee: A. E. Webster, Toronto; G. Martin, Toronto; W. C. Trotter, Toronto; R. G. McLaughlin, Toronto; W. Seccomb, Toronto. District representatives: No. 1, A. A. Smith, Cornwall; No. 2, W. Adams, Whitby; No. 3, A. W. Spaulding, Toronto; No. 4, F. Hansel, Hamilton; No. 5, P. P. Ballachey, Brantford; No. 6, W. A. Brownlee, Mount Forest; No. 7, A. S. Santo, London.
Yours very truly,
G. G. HUME,
228 Carlton street, Toronto, Ont.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Illinois State Board of Dental Examiners to examine applicants for license to practice dentistry in this state will be held in Chicago May 6 and 7, 1904.

Under an opinion of the attorney-general the following are eligible to take the examination before the board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to moving into the state, and anyone who failed to register in this state at the time the law went into effect, which was in 1881."

Candidates must furnish their own patients, and come provided with the necessary instruments, rubber dam and gold to perform practical operations and such other work as is deemed advisable by the board. Those desiring to take the examination should matriculate with the secretary at least ten days before the date of meeting. The examination fee is $10.00. Any further information can be obtained by addressing the secretary.
J. G. REID, Secretary.
1204 Trude building, 67 Wabash avenue, Chicago.

RECENT PATENTS OF INTEREST TO DENTISTS.

749,846—Dental cement injecting tube. Henry L. Cruttenden, Northfield, Minn.
749,899—Sprayer for dental polishing and grinding instruments. Henry H. Gantz, Albia, Iowa.
750,203—Dental articulator. Lewis Knight, Beloit, Kan.
750,615—Dental appliance. Wilber M. Dailey, New York, N. Y.
750,695—Rubber dam holder. Andrew J. Price, Dobson, Miss.
751,950—Dental mouth mirror. Warren M. Sharp, Binghamton, N. Y.
751,582—Strengthener for vulcanite artificial teeth bases. Robert Walker, London, England.

751,592—Artificial tooth crown mounting. Thomas H. Whiteside, Youngstown, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

DENTIST ENDS HIS LIFE.

Isaac S. Schoenbrod, a dentist with offices at 859 West North avenue, shot himself through the heart in his home while his wife was absent. On returning to the house, which adjoins the office, Mrs. Schoenbrod found the doors locked. With the assistance of the janitor a door was forced and Mrs. Schoenbrod entered her home. Lying upon his bed, his right outstretched hand grasping a revolver, the body of the dentist was found.

The man was fully dressed, but he had carefully bared his chest in anticipation of his act. A small bullet hole was visible directly above the heart. Mrs. Schoenbrod summoned the police and notified her relatives. To the former she declared that she knew of no reason why her husband should end his existence.—*Daily paper.*

RESOLUTIONS ON THE DEATH OF DR. JONATHAN TAFT.

The following preamble and resolutions were adopted at a meeting of the Odontological Society of Chicago held January 12, 1904:

Whereas, It has pleased the Divine Ruler to call unto eternal rest Jonathan Taft, who passed the portals of the great unknown October 15, 1903, after a long and vigorous career of usefulness in the profession; and,

Whereas, This society especially feels his demise from the fact that one-half of the members constituting this body have received a large portion of their early dental knowledge and training directly from his lips; and we further recognize that he was unique in his power to impress upon the pupils who sat under his instruction the sound principles of ethics and practice. He was great in his goodness, a characteristic which stands as a shining light for others to see and follow in his footsteps; therefore, be it

Resolved, That the Odontological Society of Chicago hereby testifies to the loss experienced by the profession in the death of Dr. Taft, and extends sympathy to the family in their bereavement; also

Resolved, That these resolutions be spread upon the records of this society, and that a copy be forwarded to the dental journals for publication.

(Signed) J. G. Reid
L. L. Davis.
J. W. Wassall.

To the Editor of The Dental Review.

Dear Sir:

I desire to make reply to the misleading statements of Dr. Brophy contained in the February issue of The Dental Review. As I am at present convalescing from an illness of two weeks' duration, I am unable to prepare the matter for the March issue, but will ask that you accord me space in your April number for the purpose as above stated.

Yours truly,

EDWARD C. KIRK.

THE

DENTAL REVIEW.

VOL. XVIII. CHICAGO, APRIL 15, 1904. No. 4

ORIGINAL COMMUNICATIONS.

THE RELATION OF ODONTOLOGY TO OPHTHALMOLOGY AND OTOLOGY.*

BY FRANK ALLPORT, M.D., CHICAGO, ILL.

(Professor of Clinical Ophthalmology and Otology, Northwestern University Medical College, Etc.)

When requested to write something for this Society upon the Relations of Odontology to Ophthalmology and Otology, I assumed that the honor conveyed in the invitation was not so much directed at myself as that this Society felt a strong desire to be again addressed by some one possessing the name of Allport. Many gentlemen in this room this evening were my father's personal friends, some there are who did not know him, but whether knowing him as associate and colleague, or belonging to a newer generation and not knowing him at all, whether trusting in and agreeing with him in his strong and undisguised views concerning dentistry and its destiny, or disagreeing with him and considering him over-zealous or too enthusiastic, I am confident you must all unite with me in regarding him as one of the world's dentists, and as a man whose honesty, integrity and purity of purpose can never be brought into question. I am sure it would gratify my father immensely if he could know that a dental society had invited his son (being a physician) to address it upon the interdependence existing between Medicine and Dentistry. For those of you who knew my father, and those of you who have followed his life, know that he lived principally for one object, viz.: to see dentistry acknowledged throughout the length and breadth of the civilized world as a legitimate specialty in medicine, even as ophthalmology, neurology etc., is considered.

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*Read before the Chicago Dental Society.

To this end and in order to make the idea symmetrical, he believed that dental schools should have no existence except as post-graduate institutions, that those desiring to become dentists should first take a degree as a Doctor of Medicine, and should then pass into a dental school to receive special instruction concerning this specialty. He advocated and secured the establishment of dental chairs in medical colleges. He was largely instrumental in the establishment of a Dental Section in the American Medical Association, and in the International Medical Congress. Besides these important labors, he was a practical dentist who had few equals and, I believe, no superiors. He was a friend of good and conscientious work wherever found, and was always the kindly and honest adviser of young, struggling and ambitious colleagues. He established fees for dental services that have been a lasting benefit to dentists in Chicago and elsewhere, and I think you will all unite with me in saying that the benefits which he conferred upon dentistry are far reaching and will never die.

I trust you will pardon these eulogies upon my respected father, which may be regarded by some as poor taste, but the pleasant conference between this Society and myself seemed a not inappropriate occasion for me to drop the word which lay upon my mind concerning his life and work, and to pay a tribute to his memory, which I trust, nay believe, has not fallen upon unsympathetic ears.

It surely requires no stretch of imagination to assume a distinct connection between Ophthalmology, Otology and Odontology. No portion of the body is a kingdom in itself, and independent of other portions. Cardiac affections may permeate every nook and cranny of the human organism, and the same may be said of hepatic, spinal, uterine and other diseases having their principal pathological centers in some peculiar section of the body. No argument is necessary to convince you and me that diseases of the teeth and mouth may produce pathological changes in the organs of sight and hearing, and possibly vice versa. We know it because we have seen it over and over again, and an article on this subject is only valuable through an effort to emphasize and reiterate well known facts and to crystalize them into definite and tangible form, for, although these clinical data stand undisputed, it is much to be regretted that ophthalmologists and otologists are prone to carelessly neglect the prolific etiological influence of the mouth.

Diseases of the mouth may produce pathological changes in the eye or ear by one of two channels, viz.: by direct continuity of tissue or by reflex irritation. We must not, however, lose sight of the fact that many diseases whose underlying cause has been ascribed to an elusive reflex phenomenon have been shown to have their origin in an actual migration of infective micro-organisms along the fibers of nerve tissue. Neither should we allow the pendulum to swing too far the other way in this age of doubt and materialism, to the elimination of *all* reflex pathological conditions, for it surely is difficult to harmonize the theory of septic infection with prompt disappearance of subjective and objective phenomena, upon the removal of the offending cause, such, for instance, as a tooth. As illustrating the point, Milliken reports a case of a healthy man who contracted two attacks of iritis, the first came on with the cutting of a third molar and disappeared upon the subsidence of the gum inflammation. The second attack came on after losing a filling in the third molar upon the same side as the eye, and was immediately relieved after the tooth was excavated, sterilized and filled. There was no apparent septic invasion of the iris, and the prompt disappearance of inflammation upon the removal of the irritating cause would seem to argue against the theory of septic migration. As a still clearer instance of the actuality of reflex influence, Neuschuler, of Turin, reported a case in the *Recueil d'Ophthalmologie* for August, 1899, of a man who noticed that after prolonged use of the eyes he suffered from an intense pain in the orbit which would invariably finally spread to the teeth and become so severe as to necessitate cessation from eye service; a correction of his refractive error by glasses relieved all his symptoms. In the *Annals of Ophthalmology and Otology* for October, 1895, Foucher, of Montreal, reports a case of a man fifty years of age, who had a decayed, aching and broken molar tooth. He developed a kerato-scleritis and conjunctivitis, together with herpatic eruptions on the cornea, and a little above the eyebrow along the sensitive branches of the ascending frontal nerve. The tooth was extracted and permanent relief was speedily obtained. Foucher also reports another case of a girl aged twenty-one years, who had an irritable third molar, accompanied by great pain in the eye and optic neuritis, with total suppression of vision. The tooth was extracted and a speedy cure followed. Samuel Theobald, of Baltimore, reports a case in the *Medical Record* of February 25, 1888, of a man aged twenty-six years, who contracted a suppurative inflammation about the root of the left upper lateral incisor tooth, the pulp of which had been previously destroyed by a dentist. The tooth was decayed but not painful. The pupil of the left eye became dilated and paralysis of accommodation occurred. The tooth was extracted and a cure of the ocular affection speedily followed. Theobald in the same issue reports a very remarkable history of a man of thirty-five years of age, the crown of whose right upper lateral incisor became broken off, followed by inflammation around the root and aveolar process. Both pupils speedily became immobile and paralysis of accommodation occurred together with retraction of the lids of the right eye. His taste was impaired. The tooth was extracted and the morbid conditions improved, but a cure was delayed from time to time by root and aveolar inflammation of other teeth. Each time a tooth was extracted the ocular conditions improved, but fresh exacerbations occurred as the inflammation was continued from one tooth to the other. A cure was not accomplished until all the diseased teeth had been extracted. It certainly appears as if in this last case of Theobald's at least we may feel we have had a striking example of reflex ocular disease due to persistent irritation of a branch of the fifth nerve. The theory of cell migration hardly seems possible with a history of such frequently recurring ocular explosions, accompanied by complete cure upon a removal of the etiological factor. Sewell claims to have seen a cataract developing after extracting a tooth, although one case of this nature hardly seems sufficient for the predication of an opinion. Neuschueller in the *Jahrbuch fur Augenheilkunde*, 1888, page 403, reports a case of incorrect balance of the ocular muscles which appeared to act as an etiological factor for a toothache, as the latter was cured by a correction of the muscular anomaly by prisms. Knies claims to have occasionally cured nictitation by the removal of a painful tooth, and Gasselin makes similar claims concerning supra-orbital neuralgia. Amblyopia and amaurosis are quite frequently reported as caused by irritable teeth by Lardier, Gill, Metras, Samelsohn, Keyser and others, and Knies observes that when the symptoms appear without any other visible lesion, the connection may be granted. The majority of dental reflex disturbances of an ocular nature, however, seem to be those of diminished or suspended accommodation and Schmidt in the *Archives of Ophthalmology,* Vol. XIX, page 107, has noticed seventy-three cases of weakened accommodation out of ninety-two recorded cases of ocular disturbance with dental etiology and claims that such reflex phenomena are especially frequent in young people. It is indeed a matter of common observation that many of the eye and ear diseases of infancy and childhood, notably phlyctenular keratitis and conjunctivitis and acute otitis, are apparently caused by teething and defective teeth, accentuated by the frequent entire absence of parental supervision over the mouth and first teeth of growing children. Who shall gainsay the theory that one great reason why children are so prone to eye and ear affections is, not only the occurrence of exanthematous and children's diseases, but also the presence of the physiological and pathological condition to which reference has just been made? It might indeed be difficult to prove that the discouraging and prolonged interstitial keratitis so often accompanying the pegged, softened, serrated and sensitive teeth of Hutchinson, are dependent entirely upon the underlying syphilitic taint. I think it is not at all impossible that an etiological factor might also be found in the characteristically diseased teeth almost if not quite invariably present in these cases, and one reason why interstitial keratitis of this nature is so stubborn and prolonged in its clinical history may be found in the equally and coincidently stubborn and prolonged morbid condition of the teeth. Schmidt is of the opinion that many morbid ocular conditions of dental origin are dependent upon a nervous relaxation of the ocular blood-vessel walls, thus allowing an abnormal amount of blood to remain in the eye, and producing various paretic and other conditions such as sluggish pupils, loss and spasm of accommodation, congestion of the retina, uveal tract, optic nerve, and even glaucoma, etc., etc. Kniess thinks that when loss of accommodation occurs during a toothache it probably results simply from the lack of vigorous innervation due to intense suffering. He also thinks that muscular insufficiency and diplopia, which are occasionally observed, may also be explained as paresis due to enfeebled innervation, a theory which can be readily understood as easily and rationally explaining at least some of the clinical phenomena.

We have all seen a severe toothache produce neuralgia, redness of the eye and excessive weeping, but we must not be too quick to conclude the tooth to be an etiological factor, not indeed until the neuralgia and ocular conditions promptly disappear upon a cure of the dental disease. The outlines of cause and effect, however, are sometimes beautifully demonstrated as, for instance, in a case cited by Hutchinson in 1885, who observed a marked case of lagophthalmus from spasm of the levator palpebræ superioris, which promptly disappeared upon the removal of an aching tooth, and Vossius in the *Archives fur Ophthalmologie,* Vol. 33, mentions cases of exophthalmos developing from serious infiltration of the orbital tissue, which disappeared rapidly after extracting a diseased tooth. Instances of this nature have also been observed by Burnett in 1885 and Pagenstetcher in 1884, and Dimmer in the *Wien. Med. Woch.* for 1883, page 299, claims to have seen metastatic choroiditis produced by the reflex irritation of extracting a tooth. Again referring to Kniess, he notes that pain in the upper teeth on the same side as the affected eye is a frequent symptom of the so-called ciliary pains of keratitis, but particularly of iritis and cyclitis. Less frequently is there pain in the teeth of the lower jaw on the same side, and still less frequently in those of the other side; these are cases of irradiation of pain to adjacent nerve twigs.

Neuralgic toothache may be the prodromal sign of glaucoma. It must not be forgotten that the same general nervous supply extends both to the teeth and the eye, not only through the medium of the fifth pair of nerves, but also through the sympathetic system, and it is therefore not difficult to see how amblyopia, amaurosis, iritis, keratitis, conjunctivitis, strabismus, cycloplegia, etc., etc., may be produced by diseased teeth of the upper, and even of the lower jaw, and also by poorly and improperly adjusted sets of artificial teeth, and malposition of the third molars.

While diseases of the ear of reflex origin dependent upon mouth diseases are not so well cut and clearly defined and recognized as ocular abnormalities, still they constitute a potential factor in aural histories, and must never be eliminated by one who makes careful examinations of his cases, for it is possible from time to time to find in the mouth the neglected and possibly unsuspected cause of some aural disease. I have used the word "unsuspected," but would not have it interpreted in its broadest sense, as I am personally exceedingly skeptical of the probable existence of an absolutely quiescent etiological condition. I regard it as very improbable that a diseased mouth will cause reflex or eye disturbances without the existence of some palpable morbid aural condition manifested both subjectively to the patient and objectively to the physician. This, to my mind, is the cheerful side of the otherwise mysterious and unfathomable history of reflex power. Without this probability the position of the careful diagnostician must be oftentimes well nigh hopeless, and attended with a helpless groping about in the Egyptian darkness of hidden and unknowable reflex pathology. In other words, if a diseased tooth is producing reflex eye or ear disturbances, I believe it will ache, sometimes more, sometimes less, sometimes practically quiescent, but ache, and that a careful examination of the patient will disclose this fact, and clearly demonstrate its position as a source of disease. Therefore, when I use the word "unsuspected," I mean "unsuspected" by the patient, for even though he has had a toothache or an otherwise known mouth disease, he does not associate it with his eye or ear disease because, like Kipling's "Vampire," he "does not understand," or "unsuspected" by the physician, because he is careless in his examination and diagnosis or indisposed to attach much importance to oral diseases. The same pathological conditions of the mouth which will produce reflex eye diseases, and to which reference has already been made, will also cause reflex aural affections, and reversely ear diseases may produce intolerable toothache. The terminal distribution in and about the mouth of the sensory and motor branches of the sensitive trigeminous and its associates with the great sympathetic, connects the teeth with the entire aural organism, and explains many of the reflex disturbances developing from the oral cavity.

The range of ear diseases produced in this way is much more limited than is the case with eye diseases, owing probably to the fact that there are fewer ear diseases than eye diseases, and also to the fact that the eye is more sensitive and susceptible to nervous conditions than the ear. Such aural affections are principally myringitis, earaches, sensitiveness of the ear canal, hyperasthesia of hearing, deafness, furuncles and eczema of the ear canals, especially in children of a tuberculous or strumous diathesis, etc., etc. The frequent occurrence of such aural affections, especially otalgia, with the teething of children, and its almost immediate relief by lancing of the gums, is of such common observation as to excite no comment. In lancing the gums under such circumstances, the incision should be deep in order to absolutely liberate the tooth, for the pressure between the gum and the tooth crown is not the essential etiological factor, but the pressure at the root ends on the branches of the fifth cranial nerve, when the trouble is in the upper jaw, and on the inferior branch when in the lower jaw.

I have no doubt that careful examination of patients, both young and old, with such etiological factors in mind, would disclose the cause of many aural affections. Baldwin, in the *Journal of the American Medical Association* for January 31, 1903, records seven cases of earache with no evident cause but exposed tooth pulp, all of which yielded promptly to treatment of the teeth, two cases of severe earache during the regulation of cuspid teeth due to tension of the regulating apparatus; many cases of pain in the ear during the filling of teeth, especially molars; one case of earache due to sensitive dentine; twelve cases due to deciduous teeth blocking advancing molars; eleven cases of tinnitus aurium, much if not entirely relieved by treatment of the teeth. As can be readily imagined, it is extremely difficult to sometimes draw the line as to which eye and ear diseases are reflex in their nature, and which are produced by actual cell migration or by inflammation spreading by direct continuity of tissue. Some conditions may be easily classified, while others must needs live so near to the borderland that their nativity is shrouded in pathological mystery. It must not be forgotten that the periosteal lining of the orbit is continuous with the alveolar border of the upper jaw, and almost so with that of the lower as well. The mucous membrane of the mouth is directly continuous with that of the conjunctiva, eustachian tube and middle ear. Occasionally the apices of the roots of some of the upper teeth extend directly into the antrum of Highmore, and from this situation disease frequently reaches the orbit through a thin partition of bone. The angular artery and certain veins run almost directly from one region to the other.

Personally I am exceedingly skeptical of those cases of so-called reflex ocular or aural disease of oral origin, where intense inflammatory or purulent conditions are present in the eye or ear. I believe such diseases to be produced either by the migration of infectious microörganisms, through the nervous or vascular structures, or else by the extension of inflammation by periosteal or mucous tissue. Arnold Knapp reports a case in the *Archives of Ophthalmology* for May, 1902, of a patient sixteen years of age, whose right cuspid and two upper incisor teeth had been filled at the line of the gums. Alveolar abscess followed in three days, the right side of the face became swollen and the right eye closed. Five days later the gum in front of the cuspid tooth opened and pus was discharged. The swelling diminished and the lids opened. The right eye was blind, the optic nerve white, the pupil was dilated and immovable. A firm, flat swelling appeared in the orbit. A purulent fistula was established in the canine fossa. A probe could be passed upward and forward under the periosteum and exposed a roughened bone detached. The eye remained blind. F. W. Marlow, of Syracuse, N. Y., reports a case in the *Annals of Ophthalmology* for January, 1897, of a young lady aged twenty-five years, who had an alveolar abscess of the first bicuspid of the left upper jaw which was opened and cured. It proceeded from an infected root canal. She developed pain in the eye and optic neuritis with great blurring of vision and subsequently entirely recovered. Dagilaiski, of Novgarod, reports a case in the *Klinische Monatsblatt fur Augenheilkunde* for July, 1899, of a boy seven years of age who suffered severely from alveolar abscess in the upper jaw accompanied with much swelling of the cheek and face, particularly about the eye. Pus was pressed from the diseased and carious tooth socket, which was the first upper left molar. The tooth was extracted and the antrum cleansed, during which process much pus escaped from the nose. A cure followed and Dagilaiski believes that the infection spread from the tooth along the periosteum of the upper jaw. Brunschweig has observed two cases of iritis with pus in the anterior chamber as a result of diseased teeth, and Swanzy has seen cases of orbital cellulitis following inflammatory conditions, in and around the teeth. It is a matter of common observation that erupting misplaced and diseased third molars often cause tonsilitis, which is followed by inflammatory and painful ear affections of a purulent or non-purulent character, probably produced by the close connection between the tonsilar region and the eustachian tube.

But it is unnecessary to further rehearse cases and illustrations; the facts are well known to us all, and I presume there is not a practitioner here present who could not substantiate all I have said, with citations from his private practice. The purpose of this paper is not to furnish new thoughts, but to emphasize old ones, for a long personal experience in ophthalmology and otology, with an inherited tendency to exaggerate the importance of odontology, leads me to the belief that proper respect is not yielded to the undoubted connection between your specialty and mine. I would particularly urge eye and ear surgeons to carefully examine the mouth as a matter of routine, not forgetting to closely scrutinize crown work and plates, remembering that crowns are often injudiciously placed, that artificial teeth sometimes do not fit, and are even occasionally fitted over broken roots, which can hardly fail to produce irritation, reflex and otherwise, that may account for physical ailments unsuspected by an inexact diagnostician.

Following the advice of Baldwin, I would urge the establishment in all free dispensaries of a dental department, where proper oral therapeutics might be administered and where cases of the nature outlined in this article could be promptly referred and correctly treated, and it is gratifying to note that at a recent meeting of the National Dental Association, held at Asheville, N. C., the following resolution was unanimously adopted: "Resolved, That it is the sense of the National Dental Association, that each Medical College in the United States should include in its curriculum a lectureship on Oral Hygiene, Prophylaxis and Dental Pathology." This resolution should be warmly endorsed by the medical profession and especially by those who are influential in framing the policies of medical instruction, for the active influence of oral physiology or pathology upon bodily health and disease can no longer be brought into question.

It is also gratifying to know that the municipality of Strassburg has recently voted to build an $80,000 dental hospital for school children. Every pupil in the schools is to be submitted to a dental examination on entering and twice during school time until the age of thirteen. The municipality has come to the conclusion that a large proportion of the ills of young people are due to bad teeth and lack of proper dental attendance. Now, while it may not be possible to erect hospitals in all cities for this laudable purpose, it is both possible and feasible for Boards of Education and Boards of Health to appoint dentists to quickly, yet efficiently, examine the teeth and mouths of all public school children once a year. Those suffering from oral abnormalities can receive warning cards to be given the parents, notifying them of such conditions and advising them to have their children's mouths cared for either at some office or free dispensary. In this way the health of the coming generation can be much improved and a truly incalculable benefit conferred upon mankind. Years ago I devised a plan of this nature for the examination of school children's eyes and ears by school teachers, which has proven most successful and is now being used with gratifying results all over the United States, and even in many cities in Europe and Asia. If the plan can be successful in searching for eye and ear defects, why may it not be equally efficient in detecting those of an oral character? I believe it may, and that it only needs the combined action of a united profession to place it in operation.

PRACTICAL THERAPEUTICS.

By J. P. Buckley, Ph.G., D.D.S., Chicago.

SENSITIVE DENTINE.

In the treatment of sensitive dentine it is necessary that we understand the histology of the tooth structure; the pathological changes that the dentinal fibrillæ and pulp tissue are capable of undergoing, and the pharmacologic action and the therapeutic application of the drugs and remedies used for allaying the sensitiveness of this structure.

There is no operation dreaded more by the average patient than the preparation of a hypersensitive cavity; and perhaps there is no greater source of failure in operative dentistry than improper cavity preparation—not always because of ignorance on the part of the operator of the principles involved in this operation, but quite frequently because of the nervousness of the patient and the sensitiveness of the dentine.

The first essential in the treatment of these cases, as in all others, is to gain the confidence of the patient. This can best be accomplished by making the first sitting short and not attempting anything which would cause pain. We should know exactly where every instrument in our cabinet can be found, and show by our actions that we know just where, when and how each should be used. In other words, be positive; all this tends to overcome the nervousness of the patient and inspires confidence in the operator. We can now, by the proper use of drugs, almost entirely obtund the sensitiveness of the dentine and properly do our work.

Many classes of drugs and remedies have been used and recommended for this purpose; such as physical agents, local anesthetics, cauterants and anodynes.

The *physical agents* used are principally heat and cold; both of which, in their application, produce pain nearly, if not quite, equal to that produced without their use. Both then should be discarded, except warm air used for other purposes than obtunding, as will be explained in connection with the use of a certain class of drugs.

Considering the less important classes first, I would mention, next to physical agents, *local anesthetics.* This class of drugs are not discussed here because they will not painlessly obtund; but because, in my judgment, they should not be used for this purpose. This may appear to be a broad statement to some of my readers, as this class of drugs, especially cocaine, has been quite generally recommended by recent writers for the object under consideration.

As cocaine is the representative of this class, I will briefly state my objection to its use for obtunding purposes. A severe pulpitis may and often does follow the obtunding of sensitive dentine by means of local anesthetics, applied either cataphoretically or by pressure, which, in the large majority of cases, means the ultimate death of the pulp, if not its immediate removal. Now why this disturbance in the pulp tissue? It is a fact well known to pharmacologists that cocaine has a deleterious effect upon all kinds of tissue, and is classed by them as a general protoplasmic poison. It has a more prominent effect upon nerve tissue because this tissue is the medium of sensation, and its impairment is more readily noticed.

According to histologists, the dentinal tubuli run at right angles to the base upon which they rest. Therefore, to completely obtund all the dentinal fibrillæ which merge from the sensitive cavity, it is necessary to force the anesthetizing solution through the protoplasmic contents of some of the dentinal tubuli into the pulp proper, anesthetizing the coronal portion and perhaps the entire organ. Now I am unable to say definitely that the small amount of cocaine forced into the pulp tissue becomes an irritant after the anesthesia has passed away; but the fact remains that, in nearly all of these cases, something subsequently irritates the pulp. Bacteriology teaches that certain microörganisms, in decomposing the protoplasmic contents of the tubuli, produces, among other by-products, poisonous alkaloidal ptomaines. We know also that as the decay progresses the tubuli are enlarged. It is quite possible, then, that these irritating ptomaines are carried by the electric current or forced by the pressure, with the cocaine, into the pulp tissue, and these may be the cause of the irritation after the analgesic effect has ceased. To obtund sensitive dentine, therefore, by local anesthetics, means to anesthetize the pulp—a condition which I do not believe we are justified in bringing about in order to accomplish our end.

Still another objection to local anesthetics is, that with the dentine completely obtunded, as it would be in pulp anesthetization, we are liable to drill more than is actually necessary, thereby inserting the filling close to the pulp which, if the filling is metallic, would in itself be a source of irritation.

It is stated on good authority, "That both dentine and pulp tissue are without ordinary sensation when in perfectly healthy and normal condition, and that the source of sensitive dentine and impressionable pulps, lies in their continued subjection to irritation, by which responsiveness is developed." It behooves us, therefore, to prevent rather than produce any possible irritation to this extremely susceptible and delicate tissue.

The third class of drugs here considered are *cauterants*. Among the drugs recommended are the following: Silver nitrate, trichloracetic acid, the caustic alkalies, zinc chloride, gold chloride, carbolic acid, etc., every one of which, unless their caustic action be modified, with the exception of the last named agent, primarily produces pain when applied, and are objectionable for this reason. As carbolic acid has a local anesthetic action as well as cauterant, it will be discussed with the last and most important class—*anodynes*.

That anodynes, such as oil of cloves, carbolic acid, alcoholic solution of menthol, etc., are valuable in lessening the conductivity of the dentinal fibrillæ can not be denied. That they tend to prevent rather than produce irritation is their pharmacological nature.

In all cavities where there is not much decalcified dentine to be removed, as in cervical and small proximal cavities in anterior teeth, oil of cloves, in my hands, produces the most gratifying results. Having the rubber dam adjusted and the cavity thoroughly desiccated by using absolute alcohol and warm air, gently applied, place a pledget of cotton, saturated with the medicament, and passed quickly through the flame, into the cavity. Now direct a current of warm air on the cotton and continue until the eugenol, the constituent of cloves, is completely volatilized. Then with a *sharp* bur and *steady* hand drill until sensitiveness is reached. Apply remedy again in the same manner. If cavity has been thoroughly desiccated, two applications should be sufficient to control the most sensitive cavity. In those large cavities with considerable decalcified dentine, which is usually very sensitive and must be removed, I find that carbolic acid, or a solution of zinc chloride in chloroform, applied in the above manner, gives best results; especially in the removal of the softened dentine, then oil of cloves can be used as in the smaller cavities. A solution of menthol in alcohol can be used in the same manner with good results in many cases.

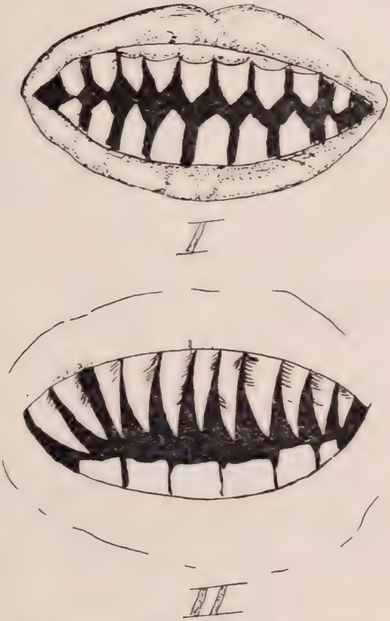
When there is no necessity of filling the cavity at once, the dentine can be almost completely obtunded, perhaps I had better say, that the pulp and fibrillæ resume their normal condition, by desiccating and hermetically sealing oil of cloves or carbolic acid in the cavity for two weeks. By this means also we lessen the liability of producing pulpitis after the filling is inserted—a factor to be considered in the insertion of any filling material in a tooth containing a live pulp. In those cases where the cavity can not be properly prepared by the use of these simple agents, and desiring to do permanent work, I would not hesitate to anesthetize and *remove* the pulp, which I believe much safer and better practice than to anesthetize and *leave* to the irritating influences of the anesthetic, ptomaines and metallic fillings.

The removal of pulps and subsequent treatment will be the subject of our next paper.

TEETH OF THE HEAD HUNTERS OF MINDANAO—FANTASTIC DESIGNS AND GREWSOME EFFECTS.

By "A Regular."

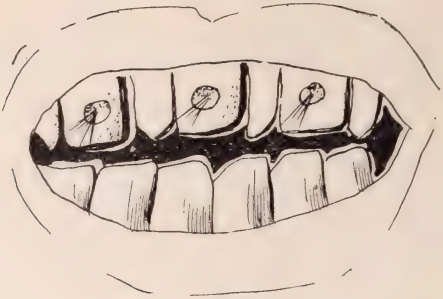
Have you read of the teeth of the head hunters of Mindanao? I made my first acquaintance with these fellows in the early part of the year nineteen hundred and two, when I was a member of the Lake Lanoa military expedition against the Moro chiefs of the lake section of the big island of Mindanao. Mindanao, as you know, is a part of the Philippines, inhabited by the heretofore invincible savage tribes of Mohammedans. Among these people are what we know as the head hunters of the country, for the reason that they make a business of head hunting when not otherwise engaged. The term head hunter as applied to the southern savages is often misleading, for the reason that one is likely to assume that the head is always to be that of a human being. In my three years' experience in various portions of the Philippines, and about eight months among the Moro head hunters, I observed that the head hunting tribes did not confine their operations to human heads.



TEETH OF MORO HEAD HUNTERS.

EVERY MAN LOOKING FOR HIS ENEMY.

Although every head hunter is on the watch for his foe, and will take great delight in beheading him, he does not limit his head hunting operations to this one person. Among the collections of skulls in his house you will find skulls of all sorts of animals. There are heads as large as those of the caribou or water buffalo to the



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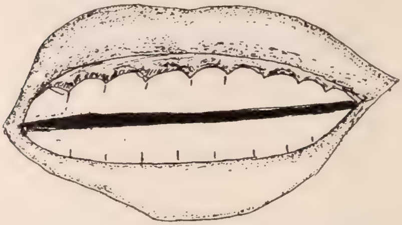
SOME TEETH SET WITH PEARLS.



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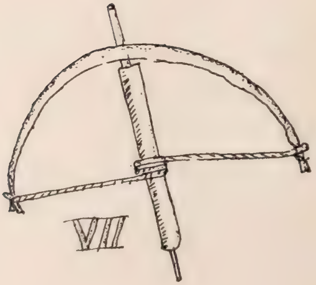

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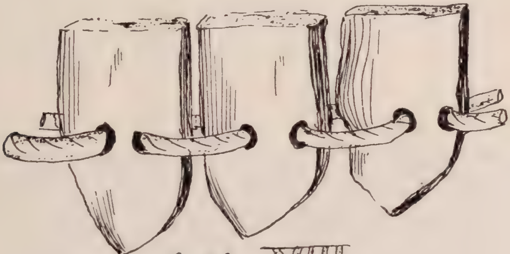
little heads of snakes. All of these skulls are nicely cleaned and polished and, in the event of a human skull, especially that of a hated foe, the skull is variously decorated in colors and fixings.

TEETH ATTRACT NOTICE.

The teeth of all the inhabitants of Mindanao are sufficiently blackened with the betel nut to discolor and redden and are disgusting to look upon. But the teeth of the head hunter are even more despoiled. The head hunter endeavors to make his features as disgusting and as frightful as possible, for the purpose of designating his ideas and for scaring and confusing his foe when the two meet in combat. The result is that you can meet with some really frightful looking mouths. The head hunter does not hide his ambition to kill certain of his enemies. In fact, it is generally held that if he does destroy certain persons his future happiness is assured if he, too, falls. The annexed sketches of the teeth of these head hunters will assist in illustrating the appearance Fig. 1 shows the



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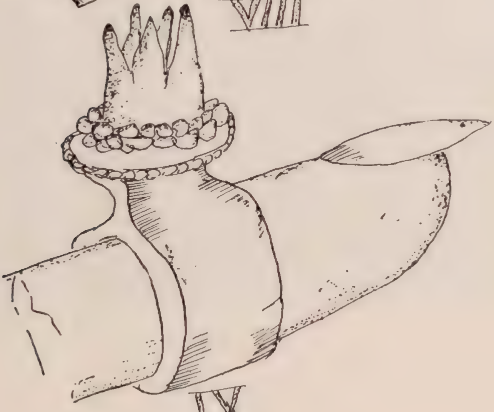

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teeth filed down to points. This is done by much laborious work with files and polishing devices. Much time is consumed in the operation. The teeth are ordinarily blackened at the same time. In Fig. 2 is another type of a head hunter's mouth, showing teeth which have been filed down to the pointed condition.

SET WITH PEARLS.

One of the oddest sights which I saw was the teeth of one head hunter who had several of his teeth set with pearls of Jolo, as shown in Fig. 3. This operation was very crudely done, as the natives have poor tools to work with. The effect, however, was quite fascinating and served to add to the uniqueness and attractiveness of the mouth of the native.

SOME OF THE SOLDIER GARRISON OF THE ISLAND OF MINDANAO.

TOOLS.

The tools and devices used by the natives in filing their teeth and putting them into the order desired are, as might be supposed, very inconvenient. Their type of file is simply a round bar of steel, with the filing portion laboriously produced with hand devices. The file is shown in Fig. 4. Then they have an awl-like tool with a hardened steel point and wood handle, as represented in Fig. 5. With the exception of the boring outfit, this appears to be the limit of the tools used by the headhunters for putting their fangs into proper condition to represent their grewsome calling.

SOLID BLACK.

Although the professional head hunter feels it his business to have his teeth wrought into all manner of shapes and sharpness, there are instances in which one sees the teeth formed into one solid, plain line, as indicated in Fig. 6. The process of thus solidifying the tooth line is very difficult and is done only in cases in which the man has practically a complete set of teeth, uniformly grown and set quite close in the jaws. Then a cement made from some of the native mineral substances is found and packed in between the teeth repeatedly for weeks and weeks until a solid formation follows. Then the row is polished and blackened and remains in its smooth, solid state for months.

SOLDIERS GUARDING MOROS.

BORING DEVICE.

In Fig. 7 is a sketching of the type of drilling tools used by the head hunters for boring little holes through the teeth. It is a very crude affair, consisting only of the bit and shaft, which is fixed to the bow-shaped piece, and the latter is drawn to and fro to impart the required revolving motion to the bit. Pressure is applied at the proper time and a hole is gradually drilled through.

TEETH SOMETIMES LINKED.

The head hunter does not appear to be bothered at all by having awkward contrivances fixed into the holes bored through his teeth.

Fig. 8 is an illustration of this type of teeth trimming. The native has another native bore the required holes for placing therein the metal rings or links. A new ring or link is added for each head taken. The native smiles at you broadly with this set of teeth and desires that you remark upon the rings. He is very proud of them.

WEARS HIS ENEMY'S TOOTH.

A novelty I saw was that of a native head hunter using one of the teeth of his beheaded foe for an ornament for his finger ring, as presented in Fig. 9. These natives all wear large types of white metal rings, and they mount them with all manner of things. The cut shows the ring mounted with the tooth of the enemy of the head hunter.

This idea of head hunting originated in Borneo, it is claimed, many years ago, where it was necessary for the young man to destroy certain of his foes before he was considered eligible for marriage.

AMERICANS CHANGING THESE IDEAS.

I am myself a soldier, and can say that the officers desire that this head hunting idea be stopped. We have orders, when on guard in market places and at festas, where the head hunters collect to locate their foes, to arrest these fanatics. A native can no longer behead his enemy and glorify himself in the eyes of his comrades by exhibiting the head of his victim. The American garrisons will not tolerate this sort of thing, and for this reason the Americans are doing much good here. There is better order in the islands than ever before. We have opened trails to the lake regions, where the country is rich in woods and products.

DIFFERENTIATION IN THE METHODS OF FITTING PLATINUM MATRICES AND GOLD INLAYS.*

By Frank E. Cheeseman, D.D.S., Chicago.

There seems to be a wide diversity of opinion among the porcelain workers in the dental profession as to the method to be employed in fitting platinum matrices to cavities, the extremists of each school apparently being unable or refusing to see the good points of the other, using one method for all cavities, irrespective of shape or location. There can be no doubt in the mind of the conservative man that this attitude is one of extreme short-sightedness, granting one method will produce as good results as the other and that shape and location of cavity should influence him as to which method he is to employ. More uniform results can be obtained by using the one best suited to the case at hand.

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*Read before the Northern Illinois Dental Society, October, 1903.

I fully believe that matrices made by taking an impression of the cavity with cement and swedged on the model obtained from that impression will result in as perfectly fitting matrices as those fitted directly to the cavity in the mouth, if the same degree of care and skill is exercised in both cases, and it will produce more certain results in cases where the cavities are complicated and difficult of access. This may not be true in the case of a few operators who have had a great deal of experience and who are especially skillful in fitting directly to the cavity in the mouth. Even these few could often save themselves time and trouble by taking an impression of the cavity with cement, and possibly they would get more certain results, taking into consideration the liability of shrinkage in the baking of large compound cases. When such shrinkage does occur the matrix may be replaced on the model and reswedged, the porcelain crushing or cracking, to admit of readaptation to model, which results in no injury to the matrix or inlay.

If any doubt exists in the mind of the operator, such procedure may be continued after each baking with a certainty that if the model is perfect the completed inlay will fit the cavity.

By using the other method no such certainty can exist. If shrinkage does occur the case will result in failure unless carefully reburnished in mouth, and the difficulty and uncertainty attendant upon this method is far greater than by the other. At least that has been my experience.

In the baking of small cases there is almost no liability to shrinkage if the operator is careful in placing the matrix on the baking slab. However, the operator who uses the impression method exclusively often does a great deal of unnecessary work, as there is no doubt that a matrix can be fitted directly to the cavity much more expeditiously when this procedure is indicated, and it is a cleaner and pleasanter method to use; in all cavities where the difficulties are not too great it is greatly preferable because of the time saved and the avoidance of laboratory work which is distasteful to most dentists.

In my own practice I fit directly to the cavity in all proximal and labial cavities which do not extend beyond the gingival line in the six anterior teeth above and below. As a rule simple proximal cavities and proximal cavities involving the cutting edge can be made easy of access by wedging and can be burnished and be made ready for the porcelain in from ten to twenty minutes. In this class of cases it seems to be a waste of time to take an impression and go through the steps necessary to obtain a matrix by this method.

Take, for example, a large proximal cavity in a bicuspid or molar, with the cervical margin extending beyond the gingival line, "as it usually does in large cavities," and involving a portion of the masticating surface, or a labial cavity in a cuspid with cervical margin extending beyond the gingival line, or a large, deep buccal cavity in a molar; it seems that it would involve a great deal more labor and fully as much time to fit directly to the cavity, and for me the result would be much less satisfactory than it would be if I took an impression of the cavity with cement. This will probably hold true with nine out of ten operators. I shall not take your time in explaining either method, as each of them has been described and demonstrated many times by representative men of each school, and I assume that all here are familiar with them.

The subject of gold inlays has not received the attention it should, owing to the interest taken in porcelain work. A great many men in the first flush of enthusiasm are inclined to place porcelain inlays in nearly all accessible cavities. I believe a perfect inlay is as good or a better tooth saver than a perfect filling. Strength should be considered when it does not conflict with the artistic point of view. I have practically abandoned the use of porcelain inlays in all posterior cavities excepting those in which the completed work would be conspicuous, and in large buccal cavities liable to be affected by the thermal changes, and use gold inlays in all other cavities of this class that I do not fill with gold or plastics.

It is advisable to use the impression method for all cavities with obscure margins, notwithstanding the fact that a gold matrix can be fitted directly to the cavity with much less difficulty than one made of platinum. The reason for this procedure is that there is considerable liability to shrinkage of matrix while flowing the solder, and it is expedient to try the inlay on the model to ascertain if there has been any shrinkage at the margin not visible to the eye when the inlay is placed in the cavity. In cases where there has been considerable shrinkage, grind off the backing, swedge up a new matrix, place inlay in matrix, reinvest and fill the defective points with solder. If shrinkage is at one point only, swedge a section of matrix for that point, attach with sticky wax, reinvest and solder. Those who have been in the habit of casting aside inlays where such shrinkage has taken place should use this method, as it will save them time and money.

When making inlays for proximal cavities requiring extensive contour and building for occlusion, it is necessary to take an impression of the cavity and adjacent tooth and bite with modeling compound; this is for a guide to contour and articulation. This would also apply to porcelain inlays. After fitting matrix, invest and approximate contour as nearly as possible with solder. After allowing inlay to cool, remove from investment and place in model obtained from modeling compound impression, then take a piece of 38-gauge gold backing, trim it to shape and burnish against adjacent tooth to the desired contour, being careful not to allow it to extend beyond margins of inlay, tack it in place with sticky wax, reinvest and flow solder between inlay and backing, which will result in a perfect contour.

The grinding surface can be shaped to perfect occlusion, and, if desired, very artistic and practical results may be obtained in building cusps with solder. One great advantage gold inlays possess over porcelain is that the margins of the cavity can be beveled, which renders them less friable; this is one of the best arguments for the use of gold inlays if they are to be subjected to the stress of mastication.

GOLD INLAYS.*

By Clarence H. Wright, D.D.S., Chicago.

The insertion of large gold foil and amalgam fillings probably occupies a very large proportion of the time of the average practitioner. Little can be said in favor of these methods and materials, and their many weaknesses are familiar to all. The large amalgam filling is an abomination, and the large gold foil filling we have considered good only because we have been groping in the dark and knew no better. It is high time that we come to a full realization of their true unworthiness, and better appreciate the great advantages of the methods of inlay construction.

Much has recently been said and written of the porcelain inlay, the beauty and value of which none can deny, but we should use judgment in its use and avoid extremes and embarrassment. With occasional exceptions I believe its field should be limited to the anterior teeth. It is my purpose to emphasize the value of the gold inlay—a method that has been to me a source of renewed courage and enthusiasm. It enables us to give our patients a work of maximum value at a minimum cost in vitality and discomfort. It enables us to discard absolutely the large gold foil filling, which, more than any other work, exhausts the operator and disheartens the patient. It enables us to pass into history the objectionable large amalgam filling. We are enabled to fill permanently the teeth of young patients, deriving all the benefits of the cements without their disadvantages. Excepting in very small cavities I recommend gold inlays in practically all cases that are not conspicuous. They may be inserted in the largest, most desperate and obscure cavities, with every prospect of permanency and where any other method would be impossible or extremely doubtful as to results.

Take, for example, a large disto-occlusal cavity in a bell-shaped second molar, one that has been repeatedly filled because of the recurrence of caries at the gingival margin, one that extends so far beneath the gum line that the adjustment of the rubber dam is quite impossible. This cavity can be filled with a gold inlay, and with a confidence in its permanency that would not be consistent with another method. I also believe that this obscure gingival border, which is the seat of so much trouble and disappointment in a large proportion of cases when other methods are used, is the most securely protected part under a properly made gold inlay. We do not find caries in a tooth that has been skillfully crowned, and surely that border in the case of a gold inlay is more accurately adapted than the best of crowns, and exists under the same conditions.

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*Read before the Odontographic Society of Chicago.

Again, let us consider a molar with the distal surface entirely gone, the disto-lingual cusp broken away and the greater part of the occlusal surface missing, yet we find the pulp fairly well covered and in a healthy condition. We can in this case insert a gold inlay, restoring the contour beautifully, affording the best of protection to any weak walls and preserving the pulp alive and free from any ill effects of thermal change, thus saving the patient the ordeal of pulp destruction and crowning.

I enter into these illustrations because they represent all the valuable gold inlay features, and similar cases are of frequent occurrence in practice.

I also occasionally use the gold inlay in the construction of bridge work, a large post or dowel always being necessary in anchoring the inlay to the abutment. It is particularly valuable in cases where a bridge is desirable but where the abutments are at widely different angles. In extreme cases of this character the tooth in the most offensive position may first be crowned with gold, after which a cavity may be cut at a favorable point, a gold inlay made with heavy dowel, but only partially built up. The bridge proper may then be made, allowing a heavy bar to extend into the inlay, the parts held in apposition with hard wax and invested. The inlay may then be completed and at the same time made a part of the bridge. By this means we are able to avoid a difficult problem and secure the accurate adaptation of single crowns. We are also able, by incorporating the gold inlay principle, to build a porcelain crown where it would be impossible by any ordinary method.

But in filling carious cavities we attain, by this method, results which, all things considered, more nearly approach perfection than would seem possible to one unacquainted with it.

Now, as to the *modus operandi.* Prepare the cavity without undercuts, either cutting away or filling in with cement to avoid them, considerable depth of cavity being permissible where desirable. Allow a fair degree of bevel to the margins. If a proximal cavity, have the floor incline to slightly greater depth from the gingival margin, or a slight groove will suffice. If the cavity can be carried over on the occlusal surface, the strength of the inlay can be greatly increased by the addition of the hooking and dove-tailing principle, allowing the inlay to emerge upon the occlusal surface through a comparatively shallow and narrow channel into a deeper and broader depression. If it does not seem wise to extend the cavity on the grinding surface, it will be necessary to depend upon a flat or grooved base, side grooves and favorable contour. Now, using a small, suitably shaped piece of air chamber metal as a cup, take an impression of the cavity with good modeling compound, and in some cases a bite is of value. Make a plaster model, and, if a proximal cavity, cut a slot on either side and break at a point between the cavity and the adjoining tooth. This gives us the model of the tooth and cavity alone and rids us of troublesome neighbors. The parts of the model may be assembled for reference from time to time. Give the model a thin coat of varnish, press into Mellotte's moldine and make a fusible metal die.

If conditions seem to preclude the use of the compound, an impression may be taken with base plate gutta-percha, into which copper amalgam may be pressed, thus securing directly a satisfactory die. For the matrix use 34-gauge pure gold, burnish thoroughly to the die and then to the model, being careful to anneal frequently, and allow the matrix to come flush with the margins.

I use 34-gauge gold because it is thin enough to submit to the most exquisite adaptation, may be forced quickly into deep and sudden depressions with little danger of puncturing, and is thick enough to handle safely and to allow the use of a fine file, and if by accident it is filed or cut too much the deficient edge may be placed on the anvil and pressed or rolled out with a burnisher to meet the margin. We now have a matrix which only approximately fits the cavity and which must be perfected in the mouth.

Dry the cavity, and while holding the matrix firmly in place with one burnisher, burnish thoroughly with another. After the most careful and thorough burnishing the adaptation is still unsatisfactory. Anneal again (and allow me to again caution you to anneal frequently during this procedure), insert in the dry cavity and swage with a piece of vulcanite rubber, using a thick piece that well fills the cavity and covers the margins. Use considerable force in swaging with finger or a broad instrument. If a proximo-occlusal cavity, swage with broad, heavy spatula, or burnisher, between the teeth and finger on grinding surface. If, upon withdrawing the rubber, the matrix is dislodged, there is danger of its having been bent. You will see that the outline of the matrix is marked on the rubber. Trim off all the overflow of rubber, re-anneal, adjust and swage again, and the matrix will be found to remain in place. place.

Dislodge the matrix with a sharp excavator and invest. When the investment material has set, trim with a knifeblade so that the surface of the matrix to be filled will be exposed and clean to the margin. Wash the surface with camel's hair brush and alcohol, after which apply with the brush a coating of liquid flux.

In building and contouring I am in the habit of using 22-carat gold, such as is ordinarily used in making gold crowns. The clippings from such work may often be used to good advantage. Cut pieces in sizes and shapes according to the case in hand. Have each piece fluxed, being also careful to avoid an excess of this material. Usually small pieces are first adjusted into the deeper depressions, upon which are successively placed as large pieces as will fit the surface without bridging over too much, until finally one or more pieces, which extend from margin to margin, may be adjusted. Then, if a rounded contour is desired, shorter pieces may be successively used from this point. It is a process of piling up a framework or skeleton of these pieces to be filled in and covered with the solder. Any contour desired may readily be secured by piling up properly shaped pieces.

It is my habit before using solder to cover the surface of the matrix as well as possible with the pieces before mentioned and using as broad pieces as can be adapted. By careful observation of these details we are able to avoid any shrinkage. After placing as many pieces of high-grade gold as will stay securely in place, distribute properly shaped pieces of 22-carat solder at such points as will permit a free flowing under and around the pieces.

In using the blow-pipe avoid applying the heat too suddenly upon the gold. Heat the investment thoroughly first, directing the flame gradually toward the gold, and just as the various pieces of solder are about to fuse throw the heat to the part desired to flow first and then to the other parts. Add the pieces of high-grade gold and solder in the manner described until the inlay presents the proper contour and surface. Immerse in acid and dress it down with suitably shaped wheels, discs, etc., being very careful to grind toward the margins to avoid injuring them by tripping; also, allow the wheels to barely reach the margin.

Now the under surface must be roughened. If, as is often the case, there is a lining of cement over the floor of the cavity, the inlay may be invested in plaster in an inverted position and sharp spurs turned up with an excavator, some of the cement being cut away to accommodate them. If the cavity is without this lining the surface may be roughened by drawing a sharp excavator over the surface repeatedly, or by drilling small holes or carefully filing slots in the surface. Occasionally in cases where it may seem desirable a hollow space may be left by first adjusting a concave piece of platinum foil or pure gold (concave side down) upon the floor of the matrix, avoiding the use of flux on the under side and on the matrix at this point. This creates a cavity which the solder will not enter.

The building of the inlay may then be continued as before described, and when finished the space may be opened liberally through the matrix. Upon insertion this space is filled with cement, thereby greatly increasing the retentive strength of the inlay and practically eliminating its conductivity.

Pins or posts may also be used and may be attached by drilling through the matrix and into the tooth as the adaptation of the matrix approaches completion. After which adjust the pins or post, hold the parts in position with sticky wax, invest and complete in the usual manner. In this way the pins are made to fit snugly the openings made to receive them, thereby securing the greatest strength.

In this process there are some conspicuous difficulties which might be mentioned, and also means by which they may be overcome. The molten metal has a tendency to run from the margins. If a considerable area of matrix is exposed at this part, a well-fitted piece of high-grade gold may be placed thereon and the heat gradually be brought to bear upon it. If the part exposed is very narrow, a similar shaped strip of solder may be adjusted and the heat applied very gradually and with the greatest care, so that it will not curl or ball, but will settle evenly down in place. This point should be observed during a great part of the procedure.

If a stubborn pit occurs in the surface, allow the inlay to cool, scrape out the defective point with a sharp instrument, flux the part, insert a very small piece of the high-grade gold and with it a tiny piece of solder, and the difficulty may be easily overcome. As stated before, have every surface carefully coated with flux, but avoid an excess. There are other difficulties to be encountered which experience alone can reveal and overcome.

When ready to insert the inlay, attach to the end of a burnisher with hard wax, and, having placed the cement in the cavity, adjust with considerable pressure. After the cement has set, complete the polishing. In very obscure cases, where the tooth structure is of uncertain quality and where the tooth is liable to remain constantly unclean—as is frequently the case with the third molars—I sometimes set with oxy-phosphate of copper.

Now, if the operation has been carefully and skillfully performed, we have a filling that is vastly stronger than any other. We have a surface and texture that is faultless, an artistic effect surpassing all, excepting the porcelain inlay, the most exquisite margins and contour, and any weak walls are better protected than by any other filling. In my experience of nearly eight years with the gold inlay I have yet to see the first case showing a recurrence of caries, and am forced to the conclusion that a cavity filled by this method is more securely sealed and protected against caries than is possible by any other.

COMPOUND FRACTURE OF THE INFERIOR MAXILLA.*

By Dr. E. O. Sullivan, Minneapolis, Minn.

A gentleman presented himself to me for treatment on May 4, 1903. He was suffering with a compound fracture of the inferior maxilla, caused by being struck by a switch engine.

This fracture had occurred thirty days previous to the time he came to me, during which time he had received treatment at a hospital and also from his own physician; but a splint made of leather and fastened over the head by a string had not sufficed to hold the parts together and effect a cure.

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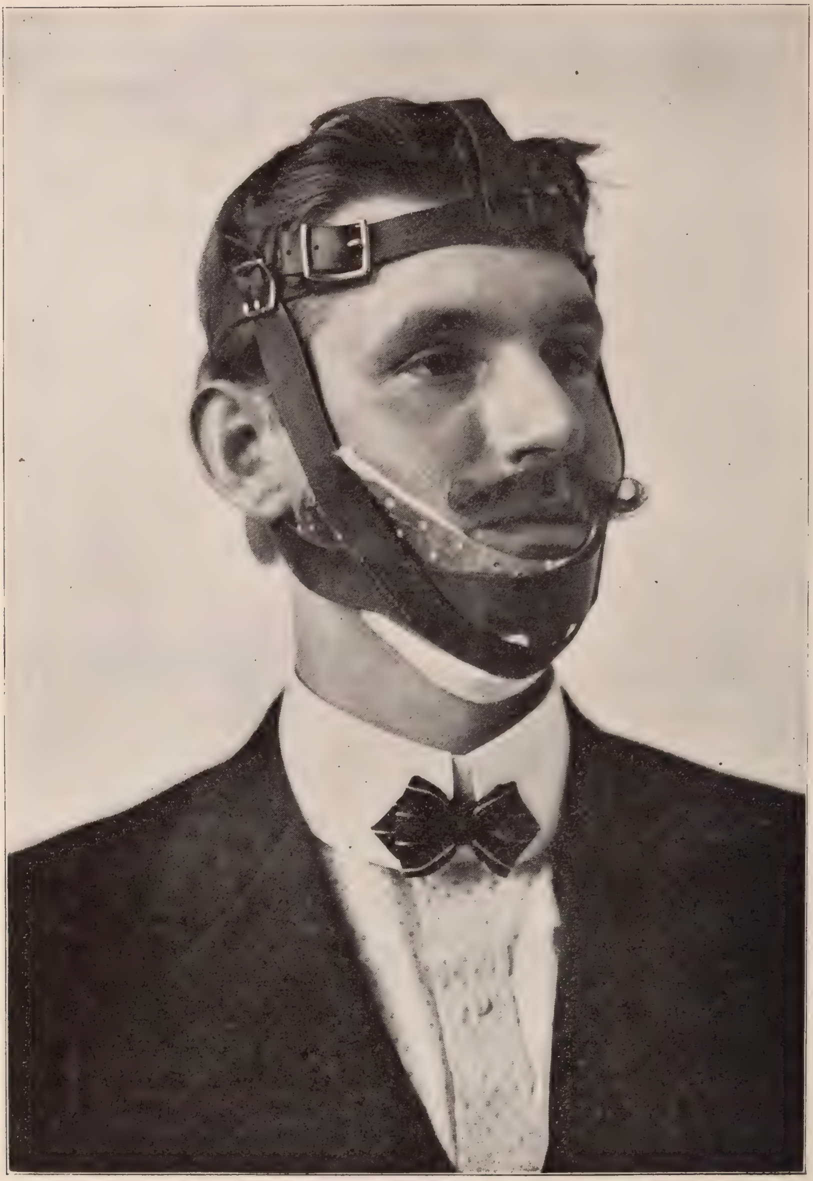
*Read before the Minnesota State Dental Association, 1903.



The fracture was on a line separating the right cuspid and lateral and extended down through the body of the bone, midway between the symphysis and the mental foramen. There was also a horizontal fracture through the mental process. On the chin were two fistulous openings, both discharging pus; but there was very little swelling or pain and the mouth could not be opened more than half an inch. After studying the case I decided to use regulating appliances. None were fastened to the upper teeth.

The parts were cleansed with a bichloride solution and the bones rubbed together to break up the false union and promote granulation of the tissues.

As it would take considerable time and trouble to make a suitable appliance, and it was advisable to get the appliance in position as soon as possible, I resorted to Dr. Knapp's regulating devices. Two appliances were used—one a jackscrew extending directly across the lower arch from second bicuspid on one side to that of the other, and the second appliance passing outside the arch from right first bicuspid to left lateral. These two appliances served to hold the ends of the fracture at positive rest and in perfect contact. As there would be considerable trouble in cementing bands to the teeth, screw bands were used and the appliance made up as follows:

No. 44 studded screw bands were attached to the right and left second bicuspid with the studs projecting lingually, pointing directly toward each other. A jackscrew composed of the long nut No. 26, left-hand threaded ball bar No. 33, right-hand threaded ball bar No. 57, lock nut No. 23 and two ball caps No. 24, connected the bands on the bicuspid by screwing the ball caps No. 24 on to the studs. By turning the long nut so as to contract the appliance, the jaw was drawn together and then the appliance firmly locked by turning the lock nut tightly against the base of the long nut.

In the second appliance a single socket screw band No. 47 was placed on the right first bicuspid with the clutch tube on the labial surface of the tooth and a single socket screw band No. 45 was placed on the left lateral. These bands were placed on the teeth so the recessed openings of the clutch tubes pointed distally. A piece of arch bar No. 35 was cut the proper length, and two clutch nuts No. 22 and two lock nuts No. 23 placed on this bar so as to engage the clutch tubes of the single socket screw bands. The bar was bent to fit the shape of the arch and passed through the clutch tubes laterally. The rounded portions of the clutch nuts were turned into the recessed openings and tightened sufficiently to exert the amount of pressure desired. The lock nuts were then firmly locked against the opposite ends of the tubes.

The combined action of these two appliances held the jaw firmly in position, and if such an appliance had been used in the mouth at first there would have been no trouble with the case.

A metal splint was used on the chin with a French dressing to keep the jaws together and also to hold the fractured mental process in position. Had it not been for this I would not have used any other appliance than those in the mouth; these held the fractured ends firmly in position.

The treatment after this consisted in cleansing the parts with equal parts of dioxogen (H_2O_2) 3 per cent and listerine, injecting some at the point of fracture, repeating same every two days for two weeks.

At this time I noticed that there was no union of the bone and that the right lateral was very loose and a small piece of process projected in the mouth.

I removed all appliances excepting the bands and administered chloroform; then using a root reamer on the dental engine, I passed it through at the point of fracture until I could feel it at the opening on the chin, at the same time cutting the ends of the bone. I extracted the loose tooth and pieces of process. When the patient was sufficiently recovered from the anæsthetic the appliances were replaced as before, leaving no space where the tooth had been extracted, and the case healed up in about fifteen days. The appliances were left in position for about one month more, and the case is now entirely well.

HYGIENE OF THE MOUTH.*

By J. W. Wassall, M. D., D.D.S., Chicago, Ill.

It is a matter of great surprise and of regret that in this day and generation so few intelligent persons give that care to their mouths and dental organs requisite to maintain them in a state of health. That this laxity is due to ignorance, both of the consequences of neglect and of the proper measures to be employed to maintain cleanliness, is undeniable. The chief blame attaches to the dental and medical professions, health organizations and college and school text-books on physiology. We have been remiss in our duties for half a century in this important branch of hygiene of the human body. The subject before us may seem trite, but we have only to contemplate the situation as it really exists to realize what an important factor the well being of the mouth exercises upon the mortality rate. In order to progress in this or any other direction it is necessary to keep the subject before us. We, as a profession, must more deeply feel our responsibility. We must realize how much depends upon us as advisers to our patients. It is culpable and dishonest to maintain an attitude of indifference to a principle of hygiene, the general observance of which would exert so tremendous an influence in promoting public health.

The situation demands, first, a quickening of interest in the subject among dentists. They, of course, can do the greatest good. Local and national dental societies should take the matter in hand officially. Regular reports might be made recommending the best means and measures to be employed in personal care of the mouth. They should disseminate such printed rules as might be approved, and secure their incorporation in text-books used in schools and colleges, make efforts to induce instructors in all educational institutions to take a special interest in the work, and perhaps make a proper use of newspaper and magazine articles, and lectures to the public.

My personal experience in everyday practice leads me to feel greatly encouraged as to what may be done in guiding patients in the personal care of their mouths. There may be occasional discouragements, but such instances, by perseverance, can be almost always transformed into the strongest arguments of the truth as preached. Since speaking to you last upon this subject I have become more firmly convinced of the value of the practice advocated. I have this to say additional: It may not be new—it is not new—but it is an invaluable measure when carried out, viz., make a special point that the gingival tissues covering the roots of the teeth to the entire limits of the alveolar processes, both internally and externally to the alveolar arches, rather than the teeth, must receive brush friction, the idea being that if this portion of the mouth is brushed, then the teeth themselves will receive their ample share.

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*Read before the Odontological Society of Chicago, June, 1903.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held December 1, 1903, with the President, Dr. Don M. Gallie, in the chair.

Dr. Frank Allport read a paper on "The Relationship of Ophthalmology and Otology to Odontology."

DISCUSSION.

DR. JOSEPH C. BECK:

The essayist has certainly brought out the vital points of this most valuable and interesting subject, and what I have to say in discussion will be largely affirming and repeating his statements. There is nothing to contradict or disprove in his paper. I personally have the highest regard for the interdependence of one branch of medicine to the other, and particularly the oto-rhinologist and ophthalmologist to the dentist. Many individuals think the dentist, as they also do the pure eye specialist, a distinct entity, and I have been often asked whether I was a doctor when I refracted a patient for glasses. I am also reminded of Dr. Dudley Reynolds in his address before the Academy of Oto-Laryngologists last year, in which he does not want to be called oculist, aurist, etc., but a doctor of medicine, and so it is in practice—a dentist is nothing less than a specialist in medicine and surgery, and I hope the day is not far off when this will be a fixed idea in everybody's mind. I wish to express my admiration of the manner in which Dr. Allport eulogized his father, for it is so apropos this evening.

It is a fact that we have many ocular affections due to conditions of the teeth and the mouth, and *vice versa* and in many instances it is said to be due to a reflex action. We have to accept this explanation in many instances but for my own part I always like to believe that those conditions are due to a true pathological condition along certain routes either by continuity of structure as along the nerve sheath or nerve fiber proper, the lymphatics or blood vessels, periosteum, etc. How very easy is it to explain a papillitis or a choked disc with secondary atrophy of the optic nerve or resolution in one and the same case, following apical affection of a tooth which is in close proximity to the antrum of Highmore. The tooth infects this cavity, the ethmoidal and sphenoidal cells consecutively, breaking through the thin plate of bone or passing through small foramina into the orbit, and here setting up a retro-bulbar neuritis with all its complications. Let the tooth be extracted, the antrum drained, the other sinuses relieved of their tension, and you will find immediate relief and eventually cure. The case may come to an eye specialist, and unless he knows of such a connection may treat it in an improper manner. Vail, of Cincinnati, in 1901 reported a series of just such cases. Hajek, of Vienna, has followed some of those cases to the dead house, and found post-mortem evidences of conditions just described.

In order to further illustrate the connection between the eyes and teeth, permit me to cite two cases from my own practice. First, a short time ago an elderly woman called me late at night, on account of her eye closing up rapidly. When I questioned her about toothache she said she had none, and on examination of the eyeball I found it normal. Also its adnexa. The mouth and the teeth looked fairly good, and I could not see any cavity nor discern any point of great tenderness or fluctuation in the region of the swelling. The first molar looked a little suspicious, and on examination of the anterior surface of the maxillary bone I found a flat, hard, indurated mass, going clear to the infraorbital border. The temperature being 101°, I decided to incise this mass, and so doing I obtained a large quantity of blood, but no pus. The patient said, however, that it had a peculiar taste. I drained this incision and put on a moist dressing, and the following morning she had normal temperature and the swelling went down somewhat, but very slowly. I had her go to see a dentist, who extracted the first molar and showed me all the evidences of apical affection. The hard mass on the anterior surface of the superior maxilla was very slow in disappearing, and I came to the conclusion that that was a periostitis traveling clear up to the infraorbital margin, obstructing the return circulation from the lids, so causing the edema, or this being primarily due to the apical affection of the tooth.

Case 2. A baby, eleven months old, was brought to me on account of periodical swelling and redness of its eyes. Each attack was preceded by a slight chill and convulsion. It had these attacks for about two weeks, sometimes once or twice daily, lasting for half an hour. The examination of the eyeball and the lids was negative. The mother noticed a big lump in the mouth, which I found in the region of the pre-molars, with a tightly drawn mucous membrane, giving it an anemic appearance. I lanced this lump to the tooth structure, and I wish to state that to my mind this was as clear association between tooth and eye as anyone may see, for since that time not another attack has occurred.

Much more demonstrative are the associations between the teeth and ears. How gratifying is it to the otologist (as well as to the patient) when he is consulted about an earache, and he makes a diagnosis of a normal ear by inspection of the drum and by functional examination finds the ear normal. He examines the mouth and finds some small cavity perhaps hidden under the gingiva. He explores that, finds it very sensitive, perhaps an exposed tooth pulp. He refers this patient to the dentist, and can almost positively assure his patient that his earache will stop as soon as his teeth are attended to, and in most of such instances, in my experience, they are cured.

But how is it in a case of a patient who comes to a dentist complaining of toothache and earache? He finds the identical condition in the tooth, attends to the same, and still the patient complains of earache. Would it not be well if the dentist would examine the ear and say to the patient, Your ear seems all right, and the pain will soon disappear, or your drum membrane, external auditory canal, etc., is affected, and you must also see an ear specialist?

It is sad, but nevertheless true, that the general practitioner lacks this ability to make a differential diagnosis, owing to the lack of technique, and often does not know whether the patient should be sent to the aurist, dentist, or both.

Dr. Baldwin, of Philadelphia, as the essayist has mentioned, reported a large number of cases of ear trouble which were directly traceable to conditions of the teeth, and when those were corrected all was well. She certainly deserves a great deal of credit for the work done, but I claim now, as I did at that meeting, that it was too conclusive an assumption that because a child was teething and during this time developed an acute middle ear disease or an earache, that this was all due to the eruption or non-eruption of the teeth, advising the lancing of the gums in all these cases. Many children, even while they are teething, have adenoids, and these are responsible for many an attack of earache or middle ear affection, because we see that when they are removed the earache stops and resolution of a middle ear affection takes place. So it is perhaps well not to be too positive or one-sided.

Now, we have heard how an ophthalmologist and an otologist have to respect the teeth in regard to symptoms and changes in the eyes and ears. May we not also call attention to some conditions of the eyes and ears that produce symptoms and changes in the teeth? For instance, a panophthalmitis or infected eyeball, which is so distended as to protrude from the orbit, may so fill the cavity as to press on the infraorbital canal, particularly when it is not covered by bone, and cause pain in the teeth by pressure on the superior dental nerve. Or a malignant or non-malignant growth of the eye and its adnexa may do the same thing by a similar procedure. Again, an osteoperiostitis of the orbit, particularly of the tubercular variety, may attack the nerve and irritate it or destroy it.

In connection with affections of the ear causing toothache I have to mention an interesting case, where a man complained of toothache on both sides of the upper jaw; the teeth were found normal. I examined the ears and removed from them two cherry pits, one from each ear, where the patient had a slight recollection of them having been put in his ears about fourteen years before. I had known the man for ten years and he never complained of an ear symptom whatsoever.

There are so many conditions of the eye and ear that have their origin in the mouth and teeth, and vice versa, that one could, perhaps, go on and mention them indefinitely. They are all very interesting, but I believe the object of the essay has been accomplished by Dr. Allport, so I will conclude my remarks and say that it is unfortunate that the paper was limited to the relation of the eye and ear to dentistry, since the nose and throat and their affections are so intimately connected with the eye and ear that I am sure the subject has not received its full consideration.

Dr. L. P. Haskell:

I do not propose to discuss this interesting paper of Dr. Allport's, but I can not refrain from improving this opportunity to respond to the beautiful tribute he paid to his father. I can safely say that there is no one in this room who had as long and intimate acquaintance with Dr. Allport as myself. I first saw him in 1856. I was then located in Milwaukee, having recently come from Boston, and at that time Dr. Frank Allport was in his mother's arms. I have known Dr. Frank Allport ever since, and I feel great pride in the progress he has made in his profession. I could not help thinking of his father as I used to see him and hear him while Dr. Allport stood there reading his paper. His father was an excellent writer; he was a good speaker. As a dentist he was my *beau ideal.* I have never seen his equal in all respects. It seemed to me he was made to order as an operator. I look back to my association with him with a great deal of pleasure during the first eleven years I was in Chicago. I became associated with him in a building on Washington street, on the opposite corner from the Venetian building, and of course was thoroughly intimate with him and familiar with his operations; saw a great deal of his work. It was always a pleasure to him to invite young, ambitious dentists to come and stand by his side, witness his operations, answering any questions that were asked. Probably no man in the dental profession has done more good or did more to advance it than Dr. W. W. Allport. (Applause.)

Dr. Thomas L. Gilmer:

I had hoped some one better qualified to speak on this subject than I would be called upon first.

I think we are to be congratulated on having had the opportunity to listen to such an excellent and interesting paper. It is a subject that should be, and I believe is, extremely interesting to the profession.

The committee invited Dr. Allport to read this paper for several reasons. We selected him because we knew his reputation as a thinker and writer; therefore we knew that he would give us an able paper. In the second place, we knew that he would give us a paper better adapted to our needs because he was the son of his father, who was one of Chicago's ablest and best known dentists.

Dentists are materially benefited by occasionally listening to gentlemen who represent other specialties in medicine. Two able men have presented this subject to us in such a manner that it can not help but be of great profit to us. The different fields of medicine often overlap. This is particularly true of the specialties of ophthalmology, rhinology, otology and odontology, since these fields are so closely related. As the essayist has said, there is no part of the human system which is a kingdom to itself. He is a narrow dentist, a narrow ophthalmologist, a narrow rhinologist, who is able to see only within his own special field. It is our duty to see as much beyond as possible. There was a note of warning sounded for us in the paper without intention on the part of the writer. We are performing operations on the teeth, we are treating teeth with inflammations at their apices, and teeth with other pathological conditions which may cause amblyopia, as has been said, or, even worse, blindness, by our not having been sufficiently thorough and careful in our work. When we have such an array of clinical cases brought before us, as we have had this evening, where the teeth were the etiological factors injuriously affecting the eyes and ears, we ought to realize what serious injury may befall our patients by not being sufficiently careful either in our work, or in not seeking out pathological conditions in the mouth which we should find. May it not be true that the majority of the etiological factors of ear diseases originating in the mouth are not from pulpless teeth, but from reflexes originating in nerve irritation. in teeth having live but diseased pulps? We all know in cases of pulpitis that it is a common thing for the patients to have reflex pain in the ear. On the other hand it seems to me that the majority of eye troubles arising from pathological conditions in the mouth originate from septic conditions. The opportunity for the passage of septic organisms from the teeth to the eye is easy, and if you will read this paper, when published, you will find that in a large majority of the cases cited in which the eyes were affected from diseased teeth it was due to septic conditions rather than irritated pulps, and when the ears have been affected nerve irritations in the teeth were the principal factors. I am not ready to say, and I do not say, that we may not in some instances have reflex trouble from an irritation started by pulpless teeth, but it would seem to me that we have reflex disturbances much more frequently from teeth whose pulps were inflamed rather than teeth whose roots are in a septic condition. The teeth are often made the scapegoat of other organs of the body, such as the uterus, stomach, or some other parts, and we have been told that in diseases of the ear pain is sometimes caused in the teeth. This well-known fact has led me to believe that we may discover in some reflexes a cause for certain pulpless teeth which we have found, when there was no seeming cause for their death in the teeth themselves. We have found teeth which were practically sound whose pulps were certainly not exposed, but dead, and in opening up the pulp chamber we have found nothing in it which would account for the death of the pulp. Therefore may we not conclude that in some instances the cause of the death had its origin elsewhere, perhaps in the ear, as the result of reflex irritation? The reflex may not necessarily have originated in the ear or eye, but from some other part of the body.

The essayist states that he is skeptical about unsuspected pathological conditions in the mouth being a cause of disease in the eye or ear. If I understand him correctly he believes that a patient must be cognizant of the pathological conditions of a tooth at some time if it is the cause of disease elsewhere. I am inclined to believe that this is not necessarily always the case.

To illustrate: Not long since, on examining the mouth, I came upon a small sinus in the gum between the lateral incisor and cuspid on the upper jaw. I said to the patient, "You have an alveolar abscess." He replied, "I have never had any inconvenience whatever from my teeth. There has been no pain." I said to him, "Here is something that would indicate a pulpless tooth, at least." In this instance I questioned the patient very closely and he was perfectly sure that there had never been any soreness about the teeth; no ache, or swelling, or other inconvenience. The sinus was so small that it would only admit a small eye probe; but still there was being discharged a small quantity of pus from it. I had a skiagraph made of the case and found a considerable portion of the bone destroyed by caries from the first bicuspid tooth, where the abscess had originated, extending forward to the lateral incisor. This is only one of many such cases where the patient was not aware of the pathological condition, a condition which might through continuity of tissue or by migration have been a cause of eye complications.

Let me speak of another case which does not bear particularly on the point in question, but shows what may result from an infected tooth and the cause not be suspected. The patient had herpes facialis, located on the cheek. I did not suspect that it had any connection with the tooth, but after I had opened up and disinfected an upper lateral incisor on the same side as the herpes the skin trouble disappeared. It was one of those roots in which there had been a good deal of absorption of its apex, and therefore did not long remain aseptic after the treatment. Upon the root becoming septic again there was a reappearance of the herpes. It disappeared again on redisinfecting. Finally, by making a resection of the end of the root of the tooth the herpes disappeared and the case remained permanently cured.

I think it would be wise if most ophthalmologists would call to their assistance in obscure eye diseases intelligent dentists to make examinations of the mouths of their patients for them. Of course, Dr. Allport is capable of making these critical examinations because he has been so closely associated with the practice of dentistry, but from my knowledge of ophthalmologists and of general practitioners I am of the opinion that they are not quite equal to a thorough and complete examination of the mouth any more than we are capable of making a thorough and complete examination of the eyes or ears.

DR. ELGIN MAWHINNEY:

In the first place, I want to express my gratification at being able to listen to a medical man or specialist in medicine talking to dentists. One of the various regrets of my life has been that we have seen fit to hold ourselves aloof from the medical profession. I do not think the other branches of medicine have held any ill feeling toward us, but we have imagined they did. I think it is largely imaginary with us, and I am glad to know that there is at last an effort being made with a view to bringing us together, and I am sure a great amount of good will come from this. It is my pleasure to enjoy the friendship and good will of three or four ophthalmologists in this city, and through them I have seen many of the things that have been talked about tonight. I have had many cases in my own practice where pains located elesewhere about the body were relieved by proper attention to the dental organs. I want to cite two cases that have come under my care in the last two years.

The first is that of a little girl. About two years ago she was brought to me by a fellow dentist. She had been operated upon for necrosis of the lower maxilla by an eminent surgeon in this city. He had made an incision fully two and a half inches long at the border of the lower jaw and removed a first permanent molar. He had taken out all deciduous teeth on that side and some bone. This operation did not relieve the pain and swelling from which the child suffered. The child was put under the influence of chloroform, or some anæsthetic, four or five times. Finally, no relief having been obtained, the child was brought to a professional friend of mine, who referred the case to me to see if I could offer any solution. When the child came to me the incision had almost entirely healed; but she still complained of pain. While she sat in the chair at certain times she would hold both of her hands on that side of the face, rock back and forth in the chair and cry out with pain. Swelling in front of the ear was pronounced. There was no tenderness in this region on digital pressure. In examining the mouth I did not see any cause for the trouble. I recommended that the child be taken to an aurist. This was done, and he found and succeeded in removing a foreign body from the ear after anaesthetizing the patient. It was thought that the child had placed this foreign body in the ear in playing, and that it had been there for a considerable time. After the removal of the foreign body and very little subsequent treatment the swelling and pain disappeared. Within ten days the little girl was completely cured.

The other case is that of a young man, one of my own patients, and has been for a number of years. His teeth are in an unusual state of preservation for a man of his years. He came complaining of soreness about the lower jaw and of soreness of the teeth in particular. The lower left second and third molars had been extracted many years previously. The rest of the teeth on that side of the mouth were healthy, so far as I could determine. They were vital teeth. There was no difficulty with the peridental membrane, and more soreness was elicited from pressure made on the outside than from the inside. Digital pressure did not reveal any soreness, except that the two bicuspid teeth seemed to be a little tender. I proceeded to test them to determine if they were vital. I could not account for the trouble in any way. I decided there were pulp stones, but before I would take the chances of drilling into a vital tooth and destroying the pulp I thought I would send him to an aurist for examination. After washing the ear cavity and removing large quantities of ear wax, the patient's trouble disappeared. Previous to this his trouble kept him awake several nights. After the removal of the wax from his ear he slept soundly all night. He has had no return of the trouble since.

I am quite certain that if I had not had experience in four or five cases similar to that I would have gone about hunting for trouble in some of the pulps of teeth, and it would have been useless. I would not have discovered the cause by so doing, and consequently would not have afforded the patient relief.

In attempting to find trouble in third molars that were erupted, but not being able to do so, I have referred some of these cases to an aurist, and have had the trouble entirely removed.

From the standpoint of the dentist these cases show the need of coöperation on the part of the members of the two professions. I have had many cases of antral trouble which have been referred to me after the ophthalmologist has failed to find any cause for trouble within the eye itself. I am sure all of you have had similar experiences to what I have had. I believe we are going to get together and study these things a little more closely. Both will derive benefit and humanity's ills will be greatly lessened.

Another thing is this: Much of this material and reports of these cases are found in medical literature, and the average dentist does not see medical journals. He confines himself to dental literature, dental textbooks and dental journals, and consequently he does not get the benefit of these cases. I should be very glad if we could get together in such a way as to feel that we have a community of interest in all departments of medicine; that each one of us will feel, whether we are called so or not, we are specialists in the healing art.

I feel that we can not thank Dr. Allport too much for having come here and given us this excellent paper. Personally I wish to heartily thank him.

Dr. J. E. Hinkins:

I enjoyed the paper of Dr. Allport very much. I have been associated with a physician for the last fifteen years and both of us work together. I feel that I can not get along without him, and he feels that he can not get along very well without me.

Dr. F. H. Skinner:

I congratulate those present on the privilege of having listened to this excellent paper of Dr. Allport's. Such papers as this bring dentistry into closer affiliation with the mother profession, medicine.

But there is one criticism that occurred to me, namely, that in nine-tenths of the cases reported by Dr. Allport extraction of the tooth is referred to as being the cure. I do not believe that extraction was necessary in the majority of cases. Extirpation of a pulp, treatment of an abscess or excision of a root would, in almost every case, have performed a cure. Of course, the treatments might in some cases cover several months. It should be the function of the dentist to save every tooth he can, and while Dr. Allport would not extract a tooth unless it was necessary it is done a great deal by both branches of the profession, and I would emphasize the necessity of trying to keep a perfect arch. Let me report a case that seems apropos this evening.

The case came under my care about two months ago. A lady living in Philadelphia had been suffering from neuralgia for two years. She had had her eyes treated, tested and glasses fitted; her throat had been treated, but still the neuralgia was persistent. She came West, consulted a physician who had been very successful with other members of the family. He made some slight changes in the lenses of her glasses. Her tonsils were removed; the nose, throat and ears were put in a healthy condition. But still the neuralgia continued. She was brought to me for an examination. I could not see anything the matter with her teeth at first, but on making a more thorough examination, at the disto-gingival margin of the second bicuspid I noticed a little redness of the gums, and completely under the gingiva was a cavity which, when irritated, produced neuralgic pains.

I put her under nitrous oxide gas with my "Hurd inhaler" and kept her asleep until I had entirely removed the pulp, put in a dressing, and at a subsequent sitting filled the pulp canals and tooth. She has not had the slightest sign of neuralgia since, even though she was certain nothing was the matter with her teeth when she came into my office.

Dr. L. H. Arnold:

Before the discussion is closed I desire to say a few words in regard to this subject. Dr. Allport, in speaking of the reflexes due to oral disease, was particular to specify not only diseases of the teeth, but of *the gums* as well.

These diseases of the gums—mainly alveolar abscess and pyorrhea alveolaris—may be almost entirely eliminated by monthly examination and cleaning of the mouth, and so are under our control and we are to blame if they are present.

Therefore the whole question of these reflexes harks back to the old, old question of oral sanitation.

Keep your patient's teeth and oral mucosa healthful by monthly scouring, and, if necessary, treatment, and Dr. Allport will find no reflexes due to your carelessness among *your* patients.

Dr. G. W. Haskins:

I wish to say a few words in connection with that case cited by Dr. MaWhinney, in which there was hardened wax removed from the ear and in which there was irritability of the peridental membrane. I think it would be well to bear in mind that we should not act too speedily in these cases. In a recent case in my practice the patient was dismissed, the work for which he came to me having been completed. About ten days later he returned with facial neuralgia extending from the eye along the side of the face and down the lower jaw, he insisting that it was caused by a lower molar on that side of the face, which upon percussion proved to be sensitive. I made a careful examination—in fact, several examinations—but could not elicit any other evidence that that tooth was the cause of the trouble. I was able to control the pain with phenacetine, and shortly thereafter the facial neuralgia and irritability of the peridental membrane disappeared, and while they probably bore the relationship of cause and effect, devitalization and removal of pulp proved not to be necessary.

Dr. Thomas L. Gilmer:

I do not think this discussion will be complete unless we have a report of a case that I heard last night from Dr. G. V. Black regarding a pathological condition of the eye which resulted from alveolar abscess. I think Dr. Arthur D. Black can give us a report of that case.

Dr. Arthur D. Black:

We were speaking of Dr. Allport's paper last night, and my father recalled a case in his practice of a patient who had been under the care of an oculist for a couple of months, and had been treated for small abscesses that had occurred on both eyes. The oculist was unable to find any cause for these abscesses, and was unable to institute any treatment that gave satisfactory results. Occasionally the little abscesses would disappear, but within a few days would reappear. He finally sent the patient to have the teeth examined, and the only pathological condition found was a chronic abscess from an upper central incisor, and the cause of the abscesses of the eye was found to be the breaking of the little pustule, that formed every day or two over the root of the incisor, with the fingers, and the subsequent rubbing of the eyes with the fingers. In this way infection was carried to the eyes from that abscess. With the cure of the alveolar abscess, the abscesses of the eyes disappeared.

Dr. J. G. Reid:

I am glad to have had the opportunity and pleasure of listening to this admirable paper. I wish there were more ophthalmologists present tonight, and particularly some of those I have encountered in my own practice a few times. Such a paper as this has a good influence on both the dental and medical professions. I do not know why I should be more unfortunate than some others, but my experience with some ophthalmologists (and I am not speaking of oculists) has not been of a character that would permit me to say very kind words about them. There is one ophthalmologist in particlar in this city to whom some of my patients have gone, and if I had taken his advice at all times some of them would not have had a tooth remaining. If a patient is sent to him and there is no trouble with the eyes, he thinks it must be in the teeth. I speak of this because three or four instances have occurred in my own practice bearing on the intercommunication of such information as we are having here tonight. I speak of this in a kindly way, with no intention of being disrespectful. I have had wars and rumors of wars with my patients and with this ophthalmologist, he believing that in some cases I was very much mistaken, and I, on the other hand, thinking that he was mistaken, and that brings about trouble at once. In a number of instances I have had patients come to me from him with the recommendation that their teeth be extracted, and when this has been done there has been no relief. Some of the patients were more willing to take his word than mine. I thought my judgment was much better than his and it proved to be so afterward. If we approach these matters intelligently we will be broader-minded men in every way.

I can not help but pay my respects to Dr. Allport's father while I am on the floor, as perhaps I am one of the younger men who have grown up since the time of Dr. Allport. Many of you here never knew Dr. Allport, and probably had never seen him. I knew him from 1876 up to the time of his death quite well. He was a man for whom I had great respect, and I feel that I must pay him the tribute of mentioning my veneration and great respect for him.

Dr. Edmund Noyes:

What Dr. Reid has said impels me to express the belief that such experiences as he speaks of are becoming more and more rare. There was a time when a good many physicians were disposed to send patients to the dentist in the same way that they would send them to an optician, with directions for this and that to be done. But I think that is very rare now. It is more and more common on both sides for dentists to consult with physicians, and for physicians to consult with dentists, and of course that is what we seek and desire and must promote in every possible way. We do not consult with each other often enough.

Some of you will remember the time when that spirit which Dr. Reid has spoken of was exhibited publicly in some articles in the *Medical Record*, of New York, in which the editor (this was some time in the eighties) undertook to school dentists on the retention of pulpless teeth in the jaws. In a very high and mighty way he asserted that they ought to be extracted. It stirred up some rather acrimonious discussion at the time, but it did not last very long, and did no more than ruffle the merest surface of the relations between dentists and physicians.

Dr. L. P. Haskell:

This discussion brings to my mind an instance which I called attention to in The Dental Review last summer. Perhaps some of you remember it. While I was in Boston last summer I met Mr. John Hood, the noted foil manufacturer. He told me of a dentist still practicing in Boston who came to him a few years ago, so changed in appearance that Mr. Hood was surprised. He said to him, "What is the matter?" "Well," he said, "I have been having carbuncles for months on my neck and back; have lost in flesh; my appetite is gone and I am feeling miserable." Mr. Hood, from some experience he had had, asked him as to the condition of his teeth, and he said, "I have a lot of roots in my mouth, some of them abscessed." Mr. Hood said to him, "Let me tell you something that you won't forget. If you do not have those roots extracted at once you will be a dead man very soon, for you are suffering from blood poisoning. I want you to think of this." The man laughed at the idea and left the room and he did not see him for several months afterward, at which time he came in an entirely changed man. He said, "Mr. Hood, you have saved my life. As soon as I had those abscessed roots removed my carbuncles disappeared, and I am now free from them and perfectly well."

Dr. J. G. Reid:

I want to correct Dr. Noyes. I did not have reference to any articles that were published in 1880, but as recently as 1901 these conditions have arisen that he speaks of particularly, and we need not go so far back as that. The conditions he refers to have not been entirely eliminated.

Dr. Allport (closing the discussion):

I can only say that I thank you very heartily for your kind reception of my paper. But I thank you particularly for your kind expressions of opinion concerning the life and work of my father. I can assure you of my deep appreciation of your remarks, and in my father's name I thank you.

Dr. Noyes has just referred to two professions. I am sorry he has said this, but I do not believe he meant what he said. I am sure we both believe that medicine and dentistry are but two branches of one profession. You may be called dentists, you may even call *yourselves* dentists, but I recognize you as *physicians* making a specialty of oral surgery. I understand this subject was fully discussed at your last meeting, and that the sentiment which I have just expressed prevailed at the meeting. Gentleman, it *must* prevail, and he who argues to the contrary is, in my opinion, taking not *"a"* step backward, but many steps backward. You belong to my profession and I belong to your profession. We are practicing side by side. You have one specialty and I have another specialty. You must, however, of course, prepare yourselves for medical recognition by first taking a medical degree, as we all do. The only place where we miss it, gentlemen, is not getting together. We don't get together enough. (Applause.) Meetings of this kind are good for us; they are good for you; they are good for me. I get information when I come here. Perhaps I have afforded you some from my side of the question. I may know things about ophthalmology and otology that you do not know, and you know things about odontology that I do not know, and when we get together and talk them over, we all learn. I think it would be a very wise move indeed if the Committee on Programs of the Chicago Medical Society would consult a similar committee of this Society, and secure the services of some physicians, making a specialty of dentistry, to come before the Chicago Medical Society and discuss subjects that are common to us all.

Now, gentlemen, why do you not go to the American Medical Association and take part in the proceedings? The Association has made a place for you, and why do some of you, holding a medical degree, hold aloof from the meetings? You should go and join your special Section, just as I join the Section on Ophthalmology. You should join hands with the medical profession and be one of us. You are just as much to blame for this as we are, and even more. If you would come with us and be with us, you would find that there would be a warmth of reception that perhaps would surprise you. I want to advise every gentleman present to attend the next meeting of the American Medical Association at Atlantic City; to go there and become members, and join the Section you are interested in, and work in it just as I do in mine.

Dr. Skinner deplored the fact that in many of the cases I reported the teeth were extracted. Now, gentlemen, you all know that there are no dentists like the American dentists. If a European dentist wishes to advertise himself as a fine dentist, he calls himself an American dentist. A large proportion of the cases I cited were taken from European authors, and I can assure you, from a somewhat long residence in Europe myself, that dentistry unless practiced by Americans, is as a rule not of a high standard, which accounts, I presume, for the numerous extractions mentioned in the reports.

Dr. Reid speaks of one or two ophthalmologists who favor extracting teeth in these cases. I think there are two horns to this dilemma. I think that we are perhaps too anxious to take radical measures when we see a patient suffering with some ocular or aural difficulty, and we perhaps feel that the thing to do is to get rid of it. That sentiment is growing less and less all the time; nevertheless, there are a great many men who feel that if a tooth is causing trouble it is better to remove it. I do not feel so, you understand, but there are a great many who do. There are many dentists, on the contrary, who, I verily believe, to save teeth would do so at the risk of a patient's life. Such men go to the other extreme, and I think a happy medium between the two would be a fair average to strike. The best thing for us to do, if we have patients with diseases of the eyes or ears, which possibly may emanaate from diseased teeth, is to refer such patients to competent dentists and let them decide.

Gentlemen, again I thank you very much for your kind reception of my paper. (Applause.)

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held October 19, 1903, with the President, Dr. Fred B. Noyes, in the chair.

Dr. Clarence H. Wright read a paper on "Gold Inlays."

DISCUSSION.

Dr. E. M. S. Fernandez:

Mr. President and Gentlemen—I wish to compliment Dr. Wright on the excellent paper he has presented to us this evening. I feel at liberty to do so because I have seen his actual work in the mouths of his patients, and I must say it is beautiful.

I am not prepared to make a comparison between gold fillings and gold inlays, but I see some very good qualities that belong to gold inlays which do not belong to gold fillings. The surface of a gold inlay is almost indestructible by the process of mastication. It is not so apt to break as a gold filling is.

In regard to the making of a gold inlay, I can not go into that phase of the subject without a blackboard. Nevertheless, I will say that I prefer making a hollow inlay, that is, to leave a cavity in the inlay. One reason is this, that in a hollow inlay you have left a thin margin, and this can be brought in contact with the margins of the cavity with less pressure than a solid inlay can. The cement which is placed in the hollow inlay will permit of compression, therefore allowing the margins of the inlay to be brought in better contact with the margins of the cavity.

In making inlays I prefer to use a great deal of gold scraps with as little solder as possible. I wish we had a better cement for inlays. I would repeat what I have said in regard to cementing porcelain inlays, namely, I wish we had a liquid cement for this purpose.

Dr. C. N. Thompson:

I have been greatly pleased with Dr. Wright's paper on this subject, because I know him to be one of the most expert practitioners we have in this line of work, and I am sure it would be a source of encouragement to all if we could see some of the work he has inserted.

As regards the field for gold inlays, I do not feel as if they belong anywhere except when exposed to occluding stress, or where the teeth need protecting from thermal action.

I still think there is a use for gold foil in small cavities, even though they be occlusal or proximo-occlusal.

I do not think there is need of using gold inlays on the buccal or axial surfaces. Porcelain inlays are indicated on the proximal, lingual or buccal surfaces, because of the better color, even though they are not in the line of vision, and because of the better self-cleansing surface. Especially where the cavity goes beneath the free margin of the gum, I believe a porcelain inlay is better able to take care of itself, because of its self-cleansing properties, than is a gold inlay. Where the cavity is proximo-occlusal or extends from the axial into the occlusal surface, there is where the gold inlay shines.

There was very little said about cavity preparation, and I feel that this is something which is just as important in this work as it is in any other. It has been my custom to give the general form of the cavity the same as I would for porcelain inlays, making the margins the same as for gold fillings, with round or beveled margins. The cavity must necessarily be so formed that when the filling is made to fit, it will go in from only one direction, the occlusal, and locked in this surface as indicated by the essayist.

Pulpless posterior teeth seem to be especially indicated for this work, where the margins can be rounded or beveled, and the frail walls protected. I have made but little use of gold inlays in bridge-work. I have never felt that it was strong enough. If a tooth is pulpless, it may be ground to almost any shape to fit a dowel, and if it is not pulpless there would be no use for a dowel. You could not insert one. If there is no dowel, there are few cavities that have enough retentive shape to warrant hitching on an extensive bridge.

In fissures on the occlusal surfaces of the lower molars I have found the use of Watt's crystal platinum and gold, where the fissures are narrow, and a little difficult to handle, very beneficial in packing these fissures in the matrix full of this material and malleting it in to a certain degree, and flowing in the solder over it. This material will not fuse during the soldering. The gauge of gold is determined by the size of the cavity. In a very large cavity I would use No. 33; in a very small one, No. 45.

As to hollow inlays, there are several ways of making them. I invariably use the method mentioned, believing that the filling should rest upon the margins or slightly inside, and not rest on the walls; that the pressure exerted in getting it to its seat brings it so much closer to the margins. One of the common ways of making these fillings, as soon as the matrix is secured, impression taken, and so forth, is to take two pieces of carbon that are large enough to reach toward the outer surfaces, waxed into place, and surrounded with two pieces of foil, and these pieces are packed around it and soldered, as indicated by the essayist. When the filling is finished, a hole may be drilled on the under-side of the inlay, leaving a hollow place for the attachment of the cement. We have a method of making a gold inlay by swaging the cover in much the same way that we make a seamless crown, securing occlusion, contour, contact point, and the inter-proximal outline in one piece, and after it has been perfectly fitted and adapted to the matrix it is soldered, and solder flowed on the inside through a hole previously cut in the matrix. This has two advantages over the other method. The first is, that the filling resting on the margin of the inlay is more apt to go to its seat than where the whole filling touches the cavity on the inside of it. The other is, that there is more cement between the metallic substances of the filling and the pulp, and then, again, where the outer part of the inlay is swaged as a piece of gold and burnished accurately to the matrix at the margin, the amount of solder which goes with the two is so thin that it does not interfere with the ease of burnishing after it has been soldered and ready to set. It leaves a pure gold margin.

Dr. F. E. Roach:

I am very much interested in the inlay question and in my opinion the gold inlay is the ideal filling in large restorations for the posterior teeth.

I had a few models in my office, and some of my friends, after seeing them, thought it would be worth while for me to show them to the members of this Society. Before passing them around, perhaps it would be well for me to give a short description of my method of obtaining the results that I do.

The cavity preparation and matrix formation is in the main identical. Either platinum or gold foil is used, but preference is given to the former. With but few exceptions I prefer to burnish the matrix into the cavity to be filled. The method of taking impressions making models, dies and counter dies will insure no better results and is wholly unnecessary. I have never yet seen a cavity in the mouth for which I could not make an inlay equally as perfect in every respect as the swaging method and at a great saving of time.

After securing the proper adaptation of the matrix it should be removed from the cavity and laid aside until the cap-piece is fitted. For this purpose 34-gauge pure gold is preferable. If the cavity be a simple proximal restoration the piece of gold may be easily shaped to the proper form with the contouring pliers, after which it should be carefully burnished and fitted so that it slightly overlaps the margins of the cavity and while holding securely with a flat instrument at the cavical margin have the patient bite down and form the occlusal surface. It may now be removed and tried to place on the matrix and if it does not fit satisfactorily the matrix should be returned to the cavity and the cap-piece refitted with matrix in place. The cap-piece is now carefully removed, after which the matrix is drawn from the cavity and the two are soldered together around the margins. To facilitate this part of the soldering the overlap of the matrix should be greater than that of the cap-piece, so that small pieces of solder can be laid along the edge of the cap-piece and flowed in between. Having united them around their entire marginal surface, the pulpal portion of the matrix may now be cut out sufficient to admit of small pieces of solder which can be flowed over the entire inner surface of the cap-piece and slightly over the inner marginal surface of the matrix. The stability of the marginal adaptation being now secured, the entire base or pulpal portion of the matrix is cut away, leaving only that portion which approaches the margins of the cavity. The overlap should now be trimmed off, the inlay polished and cemented to place.

In large inlays involving the restoration of one or more cusps more artistic and expeditious work will usually result if a die is used to swage up the occlusal surface of the cap-piece in such cases.

I am strongly convinced that there is a field for gold inlays in large restorations, especially of the molars and biscupids, and I do not believe that there is an operation that we can do, if done properly, which will give better service. I believe it possible to adapt the matrix so perfectly that it will be equally as closely adapted to the margins of the cavity as the average operator will get in a gold filling and then we have the additional means of hermetically sealing it with cement, which, to my mind, if properly done, is the acme of perfection. It can be done with much less exertion on the part of the operator, and the patient will certainly appreciate the difference.

I think the trouble with the gold inlay arises from the fact that we have not had sufficient training in its use. We have not received instruction to the extent that we have in regard to the insertion of gold fillings. Take the average student after he comes out of college and what does he know about gold inlays? What has he been taught about them? He has been taught everything from A to Z in regard to gold fillings; he has been taught cavity preparation and he understands that and knows it as well as he does the alphabet. He is taught all that is known about gold and its manipulation, and everything pertaining to it. But there has been a great lack of instruction in regard to inlay work, and for that reason the student and the average practitioner knows very little about how to make a gold inlay.

It is my opinion that gold inlays inserted with a knowledge of their construction equal that of the gold fillings, will give equal if not better results. I believe also that it requires less skill to do a tooth-saving operation with the gold inlay method than it does with a gold filling.

Aside from method of construction, I heartily agree with the essayist on most everything else and I desire again to compliment him upon the able manner in which he has treated the subject.

Dr. Don M. Gallie:

This subject of gold inlays is one of vital importance to the profession. We have had Dr. Wright explain his method of making these inlays, and he believes they are the proper things for either small or large cavities. Dr. Wright is an enthusiast and believes that he is right, but I think the majority of dental practitioners will still continue to fill disto-occlusal and mesio-occlusal cavities in bicuspids with foil fillings, and in the majority of cases they will get better results. I know how successful Dr. Wright has been with this work, because I have seen some of his operations, which are beautiful. The adaptation he gets at the margins, contour and occlusion, can not be surpassed. I can understand why he is so enthusiastic, because in the cases he speaks of, where there are large restorations, where the cavity extends to the proximal and occlusal surfaces, where the walls are weak, it is possible to burnish a gold matrix over the margin and support the walls; but he has not explained to us how the cavity should be prepared, neither did any of the gentlemen who opened the discussion. There are a great many young men here who would like to know and to learn all about gold inlays. Dr. Thompson, in opening the discussion, explained to us very briefly his method of making an inlay, first burnishing the matrix and getting the bite, carving up the cusp, and making contact with the proximal surface, but he has not told us how he solders the two pieces together, or how much hollow he allows there. I wish the gentlemen who are doing this work would explain to us in greater detail how the work is done from start to finish.

Dr. Roach told us about his method of making matrices for large complex cavities by burnishing them in the mouth. I know Dr. Roach is an expert, as is also Dr. Wright, in this work. It seems impossible in many of these cavities to get the proper matrix by burnishing in the mouth. I think one is more likely to be successful if an impression is taken. The great difficulty in making an inlay such as has been described is that it takes time to build up the contact, to get the proper contour or proper occlusion, and with the little experience I have had I must confess that I have had considerable trouble in getting the proper contact and occlusion. I would find an unsightly little bubble or bad spot on the surface just where it is most conspicuous. Dr. Wright has described how he fills that with a little gold and solders over it, although this takes a great deal of time and one is liable to make a failure of it.

Dr. E. M. S. Fernandez:

In regard to a remark by Dr. Gallie, that neither the essayist nor those who opened the discussion had explained how this work was done, satisfactorily, I wish to say that it is impossible to explain it intelligently without a blackboard. While Dr. Wright has explained his method in words, if we had a blackboard we could accomplish much more.

Dr. W. H. Taggart:

The different methods that have been introduced ought to be made more intelligible to those who have not had so much experience as others in this line of work. The question of details will make this work perfect the same as it makes amalgam fillings or gold fillings perfect. There is no use expecting that because it is a gold inlay you can throw it together and get better results than by other methods. You can not do it. And so it is a question of detail, detail, all the way through.

Those who prepare large or difficult cavities and do not take an impression with cement, do not realize how imperfect the cavity is until it is reproduced in cement, and a die made from that. There will be found imperfections in the margin of the cavity that they can not detect while the cavity is wet in the mouth.

For gold inlays, I take an impression with modeling compound and pour into it Mellotte's metal. You can pour Mellotte's metal into the modeling compound and not melt it. It will give a good sharp outline. On this I do the first part of the work, turning the difficult angles with 34 gold and then carry the matrix to the mouth.

As to the preparation of cavities, I like to have in the cavity a number of good round depressions that dip down so as to prevent sliding. Take 34-gauge gold and burnish it into all these depressions, and if the gold tears at these points put a little sticky varnish over the place and force a roll of crystal gold into it and you can lift out the matrix in its proper form and flow solder over it.

The point made by Dr. Thompson, and referred to by Dr. Fernandez, about the hollow inlay giving a better chance to burnish the margins after it is seated, I do not think holds good, because there is just as much solder about the part you expect to burnish as there would be if the whole thing was soldered. You ought not to rely at that stage on any further burnishing. The filling should fit before that. You have a larger body of cement in a hollow inlay than in one that is solid, but the actual contact of your inlay with the tooth substance is a big item in the way of retention.

In reference to a one end abutment for a bridge, I have had satisfaction in doing that. An inlay will do if you had one large enough and the cavity is in a pulpless tooth. It would allow the bulk of gold to go into the pulp chamber, and give good retention; but if the tooth is alive I can get retention in the walls, by means of pins of the size of the tooth pin. You can use platinum pins, gauge No. 19, for this work. I sometimes put in four or five in different positions over the surface of the cavity in an accessible place.

Dr. George B. Perry:

How do you pour Mellotte's metal on modeling compound?

Dr. Taggart:

By not getting it too hot. (Laughter.) A great many dentists make a mistake in using Mellotte's metal in trying to get it thin or fluid-like, so that it will run in fine corners. Mellotte's metal wants to be in a cheesy state, so that you can take it up with a spoon, and not in the melting stage, because if you pour it in the melting stage there is a tendency for it to become globular, whereas if you use it as you would take up a handful of melted snow and pack it in, it will give a sharp outline. In fact, it will give the outlines of the marks of your fingers.

A Member:

How about the investment material?

Dr. Taggart:

I do not think that has as much to do with it as one would suppose. Anybody's material would be suitable. I have used now for several years Dr. Brophy's, and I have had no occasion to change to anything else.

Dr. C. N. Johnson:

I was greatly pleased to hear a paper of this kind from a young man in the profession. I admire the enthusiasm of the young men, and while the proper places for inlays in dentistry may be a debatable subject, and while I may not quite agree with the essayist in the range of usefulness of gold inlays, still I believe, as I have before said, that the gold inlay has a wider range of usefulness in the saving of teeth in molars and bicuspids than has the porcelain inlay. I believe that if we devote the same amount of skill, the same discrimination in the manufacture of gold inlays, we will do better service to our patients in any position where the stress of mastication comes. I go a step further than Dr. Thompson. He stated that ordinarily he would not use gold inlays upon the buccal surfaces of molars. This is the one place of all others where I get the greatest satisfaction from the use of gold inlays, places where it is manifestly impossible, or at least difficult, to insert perfect gold fillings; cavities extending under the free margin of the gum, far back in the mouth, where the rubber dam would be difficult to apply and maintain in place. In that particular class of cavities I have more use for gold inlays than I have probably in any other place. I will tell you the reason why. Dr. Thompson says in these places he would use porcelain inlays. These cavities are often ill-defined in extent; they run into shallow cavities, and in many instances one has to extend them quite wide. I find the margins in these are naturally thin in many instances, and I do not like to use porcelain in any place in the mouth where a thin margin is involved. I can extend the cavity further mesio-distally, and I can also extend it further under the gum margin for a gold inlay than for a gold filling. I have done much better service to the patient in the use of gold inlays in these cases than in using gold or amalgam fillings.

But there are many gentlemen in the profession who have not yet risen to the possibilities of gold or porcelain inlays. The question of the status of inlays has not been settled, nor will it be settled until the profession understands the underlying principles of all of these things. But the thing I deplore most of all is the tendency in the profession for operators to run to fads. It seems impossible for the dental brain to take in more than one thing at a time, and we get running into a groove and follow it, until we encounter something that brings us to our senses. Inlays should be approached from the broadest possible point of view. The operator who does the best service for his patients is one who uses wise discrimination, and one who will not by any means dispense with his gold pluggers. Inlay work has a field which, when we have studied the question sufficiently, we will be able to determine definitely. As it is now, we do not seem to know, but there is a definite indication for the use of inlays, and there is a wide field for their use.

I will say in regard to the technique of the operation that there is just as much confusion today as there is in the indications for or against the use of inlays. This must of necessity be the case with any new development in dentistry. I do not consider it a bad sign of the times when men advocate an entirely different technique for obtaining the same end. We can not all follow the same method and get the same results. There is a personal equation in this work as in every department of dentistry.

While we get enthusiastic over inlays, let us not forget the good that has been done by gold fillings, because they have stood the test of time. I think I have announced before that I saw a gold filling that was put in the mesial surface of a lateral incisor more than sixty years ago, still doing good service. We of course have many failures in gold fillings, and I think we will have failures following inlay work. Gold has a good record for saving teeth not only in one case, but in a great many cases, and it is not proper teaching that we should discard gold fillings entirely. Gold inlays have their place, also gold fillings, and they are both important. In studying this question we should look at it from a broad point of view and study the underlying principles. It is necessary to have the technique of the operation taught, but the main thing, above all others, is to look upon this question from a comprehensive point of view and not run too far after fads.

Dr. George B. Perry:

This is a subject which should be of interest to those who desire a serviceable inlay for large cavities whose location suggests its use. It certainly reconstructs a broken-down tooth in a very satisfactory manner if done with the necessary care. It may be of interest to the members of this Society to know something of the method used by Dr. H. B. Tileston, of Louisville, Ky. Some of the features of preparation mentioned by the gentlemen who have spoken are similar. He prepares his cavities carefully and thoroughly with well defined outline very slightly rounded, leaving a retention for burnishing in the metal and cutting away any marked projections, thus leaving the margins clear and free. An impression is taken with a high grade modeling composition of the cavity and adjoining teeth. Copper amalgam is filled in to represent the tooth only, containing the cavity, then plaster of paris is poured into the remainder of the impression and allowed to harden, after which the compound is softened and removed. A piece of 34-gauge pure gold is carefully burnished into the cavity, being permitted to overlap the margin all the way around. It should be frequently annealed during the process of burnishing that it may be more accurately adapted to the irregular shape. To this point the manipulation does not differ materially from the methods described. After the first piece of gold is properly fitted, another one is used of the same gauge, being trimmed to extend slightly below the gingival margin and sufficiently long to permit of bending across the occlusal surface of the cavity. It is then tacked at the gingival margin with a very small piece of solder and placed in the cavity in the mouth. Small pellets of moistened cotton with the excess of water squeezed out are placed between the two pieces of gold, pressure applied with a blunt instrument and the second piece of gold contoured to the wall of the proximating tooth. The inside margin is soldered close to the occlusal angles and the flap of gold bent across the cavity. The patient is then requested to bite upon it and force it to the proper occlusion, after which it is removed, a hole sufficiently large to admit small pieces of solder is drilled in the cavity surface of the inlay and enough solder flowed into it to make the inlay as strong as desired. The remaining space can be filled with cement when the inlay is finished and set. The cotton admits of considerable force and any proximal contour within reason can be accomplished with it.

Dr. B. M. Ford:

I have had the pleasure of seeing Dr. Wright's work and, in fact, I follow his method to a large extent. There are one or two points that were brought to my mind by the questions that have been asked, and the method I use perhaps differs very slightly from some of the others. It is not entirely original with me. In taking the impression I use the Detroit compound and the Dental Protective compound mixed, and before I put it in the tooth I sprinkle powdered soapstone over it. It enables me to get a sharper impression. I do this in taking an impression for a partial plate, sprinkling the soapstone over the impression material, also over the mouldine when making a Mellotte's metal die. I do not varnish the plaster cast, and I get a sharp impression by this method. I use tin foil rolled into a rope at the end of the operation, especially if I employ a platinum matrix, having my rope malleted in place, and it forces the platinum to the walls of the cavity. If I am in a hurry, I sometimes employ 120 foil without making a model. I use anything from 33 to 120 foil, anything that I think is adapted to the case.

Dr. R. B. Tuller:

In saying a few words for the inlay, I do not wish to create the impression that I am inclined to follow fads. I agree with what Dr. Johnson has said in regard to gold filings, that they have their place, and that gold or any inlays have their place. I have had some experience with gold and porcelain inlays, and I believe I can say without question in this audience, that the average gold inlay will save more teeth than the average gold filling. There are hundreds of operators today who can not make anything better than the average gold filling; and the average gold filling is not a good filling. An average gold inlay, or any inlay, will preserve a tooth better than the average gold filling, in my estimation. I mean by that that an inlay which lacks something of being perfect in fit will preserve better and longer than the average filling, because of the layer of cement that protects the tooth; while a gold filling that does not fit—that is leaky—invites the immediate recurrence of decay. It may remain in place for some time if well anchored, but it does not preserve.

Dr. Hart J. Goslee:

I did not intend to enter into this discussion to any extent, particularly at this late hour, and after the subject has been so thoroughly covered, yet I have seen some of the most beautiful operations in the line of gold inlay work, first, done by Dr. Alexander, of North Carolina, again by Dr. Tileston, of Louisville, and also by Dr. Thompson, of Chicago, all of which so highly commends itself from a practical standpoint that I can not help but speak of it.

Like Dr. Johnson, I admire the enthusiasm of young men to a great extent,—provided, of course, that they do not go too far, or become too enthusiastic,—for the reason that many of us have to look to them for encouragement in taking up new lines of work, and yet I also have a great admiration for the conservative practitioner.

I think without question that there is an almost unlimited field of usefulness for gold inlays in the posterior part of the mouth, and believe that such operations offer a greater range of serviceability in the preservation of certain classes of teeth than can be obtained, with equal efficiency, by any other method, particularly in large cavities, but I do not think there is any indication whatever for gold inlays in small cavities. Such fillings not only protect the pulp from external thermal changes, but also protect the weaker walls of enamel in such a manner as to allow more of the natural tooth structure to remain and to be more or less permanently protected than could otherwise be observed, and hence we can save teeth by this means that would otherwise have to be crowned.

Something was said to the effect that the essayist, and those who opened the discussion, did not go sufficiently far into the details of this work. While that may be true, I want to say, as Dr. Taggart has said, that we must work out these details, more or less, for ourselves. One operator will be able to follow a certain line of procedure with success, while another will want to follow still another, and will follow it to better advantage.

I think without question of doubt that the method described by Dr. Perry as being pursued by Dr. Tileston, of Louisville, or as modified and improved by Dr. Thompson, of Chicago, is the ideal method for this work. It occurs to me that the open center or hollow inlay has all of the advantages which have been mentioned for the solid inlay, and that the increased opportunities for securing fixation as well as the protection afforded by the additional amount of cement between the inlay and the pulp, are greater. It also occurs to me that this is the better method, because of the fact that we are absolutely certain of the contour we desire to get in our inlay.

I have never seen any of Dr. Wright's work, although I understand that he does beautiful operations, but the average operator will doubtless obtain a much better result by building the contour as Dr. Thompson does, with duplicate pieces of gold swaged to the proper outline, than by the consecutive fusing of small pieces of plate. In filling the matrix with plate gold, or with solder, there is always an element of doubt occasioned by the possible change of form accruing from the shrinkage of these metals in fusing. Although they are invested, this may take place, but is entirely eliminated by observing the method wherein duplicate pieces of gold conform to the proper outline and contour. I think that there is a great field of usefulness for the gold inlay, and believe all of us should make use of them, because we can preserve more of the remaining natural crowns of certain teeth better with it than we can with foil gold or any other means at our command.

Dr. C. N. Thompson:

Reference was made to the use of platinum foil as a matrix. My experience with that has been that it is so very thin that in the soldering process, when brought close to the teeth, there is really no room or no material that you can burnish on the margin. Furthermore, as the solder is fused it alloys with the platinum, making a very stiff part to burnish.

Again, with regard to what was said about burnishing margins after they have set. It is only possible to get an inlay as close to the cavity as are the particles of powder that are used in the cement, because it is impossible to press the particles out without pressing the whole substance out. If our inlay is as far from the cavity as the particles we have got to burnish, and if the metal that is used for the matrix is as thick or thicker than the layer of cement, then it is impossible for us to burnish or to force the edge down to the tooth, absolutely sealing the cement in there. This is an advantage that the gold inlay has over the porcelain.

Dr. Wright (closing the discussion):

I wish to thank the various gentlemen for their very considerate discussions. I wish it understood that I am not a faddist. I do not believe in placing any one kind of filling in all places. I undertook this inlay work some eight years ago with some misgivings, and only used it in occasional selected cases at first. But it grew upon me, it was unavoidable, and I gradually spread to the extent that I have mentioned tonight. I do not put them in very small cavities. I do not think that the gold foil filling or the amalgam filling has stood the test. We must admit that we all spend a great amount of time taking out amalgam and gold foil fillings and refilling the cavities. Often we do not realize how poor our methods are until we find something better. And it is so in this instance.

In this, as in all other methods, men will differ as to details. Each will put into the work his own individuality and peculiar talents, and perhaps all attain the same results. By the method I have described we can secure results in contour, occlusion and texture that are all that could be desired.

In regard to the remarks of Dr. Taggart concerning the pouring of fusible metal into the compound impression, I do not think that this is desirable, because one of the great advantages in using the plaster model is that we are able to isolate the tooth and cavity and do away entirely with the annoying neighboring teeth.

Of course, the criticisms in my paper in regard to the old methods of amalgam and gold foil were meant in a comparative sense. Amalgam is unsightly and either shrinks or chips at the margins. The large gold foil filling is a severe tax on the patient and operator alike. Both methods require the cavity to be kept dry for a considerable length of time, and the presence of the slightest trace of moisture means certain failure. Through innumerable causes defects may occur at the margins, the slightest of which will soon amount to a veritable tunnel. The gold inlay method requires the cavity to be kept dry but a few minutes. It is the strongest material used in filling teeth. It is immovable and indestructible to the very margins. It is inserted in cement with considerable pressure and with its exquisite adaptation seals the cavity most securely. The gold inlay can be successfully inserted where no other permanent filling is possible.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held at Hotel Stratford, June 9, 1903, with the President, Dr. E. J. Perry, in the chair.

Dr. J. W. Wassall read a paper on "Oral Hygiene."

DISCUSSION.

Dr. P. J. Kester:

Dr. Wassall has suggested many points in his paper, and among them instruction to patients as well as to the public. It seems to me, that in some way there ought to be what might be called popular methods of instruction for the public in regard to the care of the teeth. I do not recall the paper he refers to tonight, but I do recall the fact that the activity of this Society was stimulated by a paper that Dr. Wassall read before it, which resulted in the issuing of the little brochure on "The Treatment of Pulpless Teeth," by the Odontological Society of Chicago.

Dr. L. L. Davis:

The method of teaching the care of the teeth among dentists, I suppose, is the same as that which has been advocated for a number of years, and that is, impressing upon patients the necessity of cleanliness. But I think the main thing is to impress this upon children, and that the parents see that the children clean their teeth.

I was very much impressed with one thing in the previous paper referred to by Dr. Wassall, and that is massage of the gums in the treatment of pyorrhea. Of all the things suggested by way of therapeutics or prevention, there is nothing that has given me so much satisfaction and such excellent results as massage of the gums and impressing upon the patients the importance of doing it for that particular trouble. Those patients who come back to us, and whose gums look in a good condition, when asked what they have been doing, tell us that they scrub their teeth five minutes every morning and five minutes every evening, and we find that those are the ones who get the greatest good. On the other hand, those who say they use borolyptol, or listerine, or some other agent, and let it go at that, we have to go through the same process in teaching them that we did before.

DR. J. G. REID:

This paper has dealt with what should be done to the public. There have been no outlines laid down by the paper to be followed, but the author appeals to this and other societies for some particular outline of instruction that can be placed in the hands of the public to make it impressive, not as coming from one individual, but as coming from a body like this. The Odontological Society two or three times a year in its meetings refers to the brochure on the treatment of pulpless teeth, which established its reputation as a body in this country. It occurred to me, during the reading of the paper, Why should not the Odontological Society take up the same proposition and publish a brochure or treatise on the care of the teeth? It would do more good and be of more value as a means of reaching not only our own patients, but the public and other people's patients than anything else we could undertake.

DR. ELLIOTT R. CARPENTER:

The suggestions contained in Dr. Wassall's paper are most timely, and should receive the united action of some dental body. There is a great lack of intelligence on the part of the general public, as well as a seeming lack of intelligence on the part of the average dental practitioner, in informing the public as to the best manner of cleaning the teeth. In my own practice I come in contact with people who have been patients of dentists from all over the country, men who are intelligent practitioners, and yet they do not know the first rudiments of the personal care of their own teeth. In the last two or three years a great many patients have come to my office with stains and deposits on their teeth. They had been told to brush their teeth across, and not up and down at all, and when I took some of them to task for it, and informed them that they had not been brushing their teeth in the right way, they expressed surprise, and said that they had never been informed that there was any special way to brush the teeth in order to get good results. It has been my practice in recent years to have children and adults brush their teeth in my office, for the purpose of illustration. I would show them how to use the brush up and down in cleaning the teeth, in order to see what the bristles can do and how they can get in between the teeth.

Personally, I should be glad to see the Society put forth some such book or brochure as has been suggested, and put it in the hands of public schools or in places where it would reach the general public.

Dr. C. N. Johnson:

I am very glad, indeed, Dr. Wassall has brought the subject before the Society. There seems to be a growing interest in the importance of the question of oral hygiene. Physicians generally are recognizing the importance of it. We find that physicians are instructing the trained nurses to take better care of the mouth than formerly, so that we do not see today the same bad results from illnesses in our patients which we formerly did. It is a healthful sign, because when we remember the character of the mouth and the nature of the oral secretions, we recognize that in this particular location in the body there is the greatest opportunity of any place for infection. It seems to me to be also a healthy sign when a man like Booker T. Washington, in a public address, states that in his association with the colored people, taking them into the institute with which he is connected, that he bases the progress of an individual toward a higher state of civilization upon the question of the tooth brush more than upon anything else. I think it not only shows an insight into the character of Mr. Washington himself, but it demonstrates the trend of the times in connection with this feature. He said that just as soon as an individual would go and get a tooth brush for himself, he had some hopes of him, but not till then.

I heartily endorse the suggestion that has been thrown out that this Society issue some kind of treatise upon this particular subject, one that shall be recognized as authoritative, very carefully considered, and the correct principles of oral hygiene taught in it.

Dr. E. A. Royce:

The first people we need to teach about the care of the teeth are dentists, according to my idea. When we have patients who have been instructed to use pumice, soap, listerine, etc., by dentists, and when we hear of dentists who regard it beneath their dignity to put their patients' mouths in order in the way of cleansing them, I should say the first requisite is to have the profession thoroughly instructed in regard to oral hygiene and its necessities. We have to do a great deal of missionary work with our patients in that direction, giving them thorough instruction in the care of the mouth and of the teeth. That is a part of the program of every member of this Society. In times past this question has been agitated before this Society, and members have investigated the effects of the different materials used for cleansing the mouth and the teeth; they have also investigated the different methods of using the tooth brush. All these are wholesome lessons to us.

When we approach our patients as to the necessity of cleaning their mouths and teeth, we sometimes have to say something that is disagreeable to them. We may have to compare a filthy mouth with filthy dishes, having them put down without washing them repeatedly. I have in one or two instances found it necessary to resort to even more disagreeable things than that. I remember one case very well where I asked a young lady if any young gentleman had ever attempted to kiss her, and she immediately wanted to know why. I told her that her teeth were so dirty and her mouth was so filthy that I would be very much surprised if any young man attempted to kiss her. She is a patient of mine now and her mouth is well cared for. Many people do not realize the importance of cleaning the teeth and rinsing the mouth, and how essential it is to good health. I sometimes think we waste our breath in talking to patients on the subject of oral hygiene; and it is possible this Society will waste its time if it prepares a pamphlet for the profession or the public on oral hygiene. But as good missionaries, it is our duty to speak of the good work. It is one of the most discouraging parts of dentistry to me, one to which the least attention is paid, although I am free to advise patients what to do.

DR. TRUMAN W. BROPHY:

Dr. Wassall has the happy faculty of bringing before us matter that not only excites interest at the time, as he has done this evening in the presentation of his paper, but it seems to take deep root and grows, and I want to make the prediction now, that what has occurred here this evening will cause more active interest in this particular line of thought than anything that has occurred in years, because when the work has been finished by this Society I think we will find that it will have brought us a greater reputation as an organization than the subject that was referred to by Dr. Davis in regard to the monograph on the management of pulpless teeth. That monograph really brought the Society before the whole professional world. I will tell you the struggle I had in selecting a topic for an address to be delivered at the meeting of the International Commission of Education. At first I selected, at the suggestion of Dr. Harlan, for a topic, "Modern Tendencies Toward Specialization." And then I thought that would scarcely be enough, and I would add another subject, and the second subject I selected was, "The Importance of More Thorough Training in Dental Pathology and Oral Hygiene in Schools of Medicine." And as I began to write on this subject, I concluded that I would drop the first one and confine my time to the second, which I did, and I entered into it rather deeply and widely. The reason why I refer to this is to show what I think should be done. This Society should get up a series of questions and send them to the universities and medical schools everywhere in this country and Europe, and have them answer the questions: What is the school of medicine in your university doing in regard to the teaching of oral hygiene? And in natural order, what is it doing in teaching dental pathology in its general relation to the field of medicine? In the work that has been suggested to be undertaken this evening, we should begin where it will do the most good, and while I recognize the fact, as stated by Dr. Johnson, that medical schools are doing more than they did formerly in teaching oral hygiene and dental pathology, they are not doing very much, as compared with what there is to be done. If they will take up the subject and teach it as it should be taught, we will not find so much ignorance among the people, because the physician in his practice comes in contact with a great many more people than the dentist does. A dentist may not treat more than four or five hundred people in a year. If he treats the teeth of this number of people and preserves them, he will not have much time to do anything else. The physician, on the other hand, can take care of five times that many patients in a year, and it is for him to teach them oral hygiene as well as general hygiene, but he does not. As an illustration of that, I had in my clinic today a boy, ten years of age. He had on the side of his face a plaster, and when the plaster was removed, I found he had a large ulcer covering the lower border of the jaw, about an inch and a half long. The bone was exposed. There was necrosis of the bone; abscesses had formed about the roots of some of the teeth, and the infection had been carried around the bone, destruction of the periosteum had followed, with necrosis and a general breaking-down of all of the soft parts beneath the lower border of the jaw. I asked the boy if he ever brushed his teeth, and he said no. It was really unnecessary for me to ask this question, because it was evident that he did not do so. Why should such cases be found in an intelligent community like this, where medical men and dentists are supposed to know and should know how the teeth should be cared for? Is it likely that that boy's mother had ever received instruction in oral hygiene by the physician who attended her during the birth of her first child, and who has cared for her in a professional way perhaps up to the present time? It is not likely the physician said a word to her about her own teeth or those of her children. There is where the trouble lies. Medical men are teaching almost everything except oral hygiene. There are some medical schools which do not make the slightest pretext toward teaching oral hygiene, and if we can get them to do it, we will get at the root of the question. I believe dentists should know more about it, and do more toward instructing patients than they have formerly done. However, the field of the dentist is extremely limited in teaching oral hygiene when compared with that of the practitioner of medicine, or of the teacher in the public schools, and of the teachers in the higher institutions of learning. It is remarkable to see the work that is being done abroad in the public schools in teaching oral hygiene. They are vastly superior to us in that respect; we do not seem to accomplish much, and our professional men do not seem to interest themselves in it. A great many medical men do not seem to realize that it is a matter of any special consequence, yet they are brought to the bedside of people who have been forced to take their beds in consequence of diseases which have had their origin in a lack of observation of the laws of oral hygiene.

Dr. Harlan has thought this subject out much better than I have, and I would like to hear from him. Before the President gets through with his duties, I think it would be wise to have a committee appointed, with a view to learning from the different institutions, medical and general, as to what is being done in teaching oral hygiene, and then we will come to some conclusion. Of course, some of them will not take enough interest in the subject to reply to our questions, but a great many will. See what was done by the Odontographic Society of Chicago two years ago in sending out a circular letter to the cities of the world, having a hundred thousand inhabitants and over, requesting information on what was being done in the respective countries or cities in the teaching of oral hygiene to the children in public schools. This letter elicited a great deal of valuable information. It has enlisted interest in this subject by institutions that had never given it a thought. Those institutions sought information how to proceed. They were anxious to have information from the committee that sent out this circular letter, so as to enable them to proceed to do something for the children in the public schools. Hygiene and preventive medicine are themes that are claiming more attention today among medical men than any others, and there is no department of hygiene that demands closer consideration and more deep thought than this very important one that we have up for consideration tonight.

DR. E. J. PERRY:

Speaking of physicians as educators, brings to my mind a little experience I had with a physician during my late illness. As most of you know, I had typhoid fever. I called in an excellent physician and after coming to see me several times, and my mouth becoming foul, I said to him, "Doctor, do you pay any attention to oral hygiene? Don't you know that my teeth and mouth are the finest culture media for the development of germs?" He said that this was true, and I hinted to him that the care of the mouth and teeth might have been a part of his instructions, but he did not say anything about that. I suspect that that was his custom.

The physician is the man above all others to teach the public in regard to the care of the mouth and of the teeth, if he will only take the proper interest in it. About instructing people in regard to the care of the teeth, I have had several controversies with patients about it. In fact, I do not have a single family, whose teeth I care for, that I do not systematically and regularly instruct them in the care of the teeth. I believe the average person likes to have his teeth or mouth look well. It is an evidence of good breeding to have clean teeth, and it is just as essential as it is to have the shoes shined, or to have a clean collar. We should show them scientifically how their teeth can be cared for and how decay can be prevented. We should impress upon them the importance that they can be better repaid for five minutes' work in the morning, and five minutes' work at night, in the care of the teeth, than anything else they do during the day in the way of personal care for themselves. I have tried to convince ladies that if it was possible for them to keep their mouths perfectly clean and aseptic all the time, the teeth would not decay. Of course, it is said that the microörganisms of the mouth will grow in four hours, but they can not if the mouth is thoroughly sterilized and kept clean.

The other point brought out by the essayist is a very important one. Rarely a day passes that I do not say to some of my patients that their teeth are all right, but what are you doing for the soft tissues around the necks of the teeth? If the teeth are sound, and the gums are hypertrophied, inflamed, bleeding and sore, I do not care how they clean their teeth or how clean they are, sooner or later the teeth will decay. I like to see a healthy gum as well as a pretty tooth, and it is impossible to have a clean mouth and have the gums unhealthy and loose around the necks of the teeth. Massage of the gums, therefore, is a very important adjunct in caring for the mouth and the teeth. I tell my patients to take one end of the towel with which they wipe their faces, wrap it around the fingers, insert it in the mouth, and work it around the gums, massaging the gums with fingers or brush. In doing this it is very essential for them to get into the sulci and the interstices of the teeth in one way or another.

Some one has spoken against the use of pumice stone. I do not believe there is one of us who does not use occasionally pumice stone. If you can not get off a stain you do not need to be afraid of using a little pumice on the teeth. I tell my patients to use it occasionally. Of course, they do not use it every day. I clean my own teeth with pumice occasionally.

It is our duty to take hold of this matter along the line indicated by Dr. Brophy and Dr. Reid. We are a society for the promulgation of ideas among others as well as ourselves, among the public as well as dentists.

Dr. A. W. Harlan:

I have read the pamphlet that was issued by the Illinois State Dental Society many years ago with reference to the care of the teeth; also the little book issued by Dr. Arthur Holbrook, of Milwaukee; and the one by Dr. Victor Bell, of New York, which has received the endorsement of normal school teachers throughout the country; I have talked with Dr. Bethel, who started a journal called *Information,* which was intended to be an educator of the public with reference to oral hygiene, and I told him it was a bad title to begin with. I have read the book issued by Dr. Hopkins, of Massachusetts, and I have read other books on popular hygiene, and among them Dr. J. W. White's book. These books and the pamphlet issued by the Illinois State Dental Society do not fill the bill. What we want is a pamphlet of about sixteen pages—not so large but what people can read it and be impressed with it. We do not need figures as to how many microörganisms there will be, if the germs and spores were placed on a piece of isinglass or on a sterilized potato. We want to tell them about the personal care of the teeth, and what the consequences will be if they do not heed our instruction. Such a book would be published by the daily newspaper if issued by the Society. In writing this little book, we should begin with the teeth, and end with the gums, or begin with the gums, and end with the teeth. We should issue a pamphlet that is pointed and not lumber it up with too many formulas for tooth powders and toothbrushes. We should have things in the formulas so that it will be cheap enough for people to buy, so that they can use them. We should point out the importance of brushing the teeth and the time for so doing. There is no use in brushing the teeth in the morning if you have cleaned them the night before, except for your own personal taste.

Before Dr. Reid got up to speak I was going to make a motion that the Odontological Society concern itself in the production, within the next three or four months, of a book on the care of the teeth, and that a committee be appointed to do that work. This committee should issue a short letter, which shall be sent to every training school for nurses, to every dental school, to every medical school and to every school of pharmacy in the United States, wherever it can get the addresses, and find out what instruction, if any, is given with relation to the care of the teeth in those schools to the pupils. If the committee received enough answers, it could classify them, and this classification could occupy one or two pages of the book. The committee would then be able to determine whether the subject was of sufficient importance to cause a book of this character to be issued to the public. I will guarantee that the Chicago *Tribune,* the New York *Herald,* the Philadelphia *Public Ledger,* the Baltimore *American,* the San Francisco *Examiner,* etc., would be willing to publish a brochure of that kind in one of their Sunday editions. In this way it would be spread broadcast throughout the United States, and this would be an epoch in the history of the society, because here would be something that none of the societies of hygiene, military, naval or public, has done. They have said something about the care of the eye, the care of the ear, but there has been nothing authoritative said with reference to the care of the teeth.

Dr. J. E. Hinkins:

Last week I took a lady to the hospital in this city for an operation. The surgeon, before proceeding to do the operation, spent about fifteen minutes in washing and preparing his hands. There were six physicians at the operation, and I do not think I have ever seen such filthy mouths as these men had. Four of them were leading physicians of this city. I said to them, "You spend about fifteen minutes in washing your hands and making preparations to do aseptic surgery, but why do you not wash your own mouths nad clean your teeth?" Some of them had pyorrhea; others had gums that had receded, and pus was weeping from around the necks of the teeth. The remarks of Dr. Brophy forcibly reminded me of this.

In my practice I have about ten physicians as patients, and, with the exception of one family, they are the most negligent I have to deal with. I do not know of one among those physicians who advocates oral hygiene in his practice. They are all considered progressive men.

Dr. J. H. Woolley:

There is one thought that we overlook in speaking of oral hygiene, and that is hygiene of the stomach. I have noticed in my practice, and I suppose other dentists have observed the same thing, that it does not make any difference how much patients cleanse their teeth if they are affected with stomach troubles. I have a number of marked cases of disease of the gums brought about very largely by disease of the stomach. I think it is a good idea to investigate those cases and have them put under the care of a physician.

I am heartily in favor of Dr. Harlan's idea, because nothing the Odontological Society can do will give greater emphasis to our work. When an individual who has lived a long time dies, the question is naturally asked, What impress did that individual make upon the lives of others? It is only in such a way that the individual can be known, and there is nothing so good and so noble for a society to do as to leave an impress and a heritage for those who are to follow in a thought of this kind, and I hope that this will be a specialization of the work that the Odontological Society can do, and I trust you will heartily support Dr. Harlan in any move in that direction.

Dr. Wassall (closing the discussion):

If the society wishes to do some work of this kind there is no question but it would have a great influence for good upon the general public health, an influence that would last forever, and if we can get to work at it, it will be one more tribute to the usefulness of this society.

REMARKS ON THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS.

Dr. A. W. Harlan, delegate to the International Medical Congress, was asked to say a few words on this subject. He said:

The Fourteenth International Medical Congress was divided into sixteen sections, and it comprised about seven thousand one hundred members. In the dental section, which was Section 12, there were about four hundred and fifty members. The official languages of that section were Spanish, French, German, Italian and English. On the first day, after the congress was opened, the sections gathered and listened to the address of the president, Dr. Louis Judea, and afterward there were eight honorary presidents from different parts of the country appointed and voted upon and six honorary secretaries. I had the honor of presiding over the first meeting of the dental section, when more than four hundred were present. There were more than a hundred and fifty papers in the official programme to be read before this section, but it was impossible to read more than thirty or forty of them. About forty or fifty clinics were provided for, and it was likewise impossible for all of them to be given, because the rooms were not large enough. The Dental School in Madrid has about eight or ten chairs, I should think. But all of the clinics that were given were given to full houses, and there were a great many new and novel things shown.

One that impressed me particularly was the exhibition of a patient who had a rubber denture above and below, which would stay in the mouth absolutely without any spiral springs, or anything of the sort, on account of the way in which it was constructed, and there was no palate to the plate in the upper jaw. On each side of the mouth, about opposite to where the second molar would be naturally, there was a little rubber bulb that was fastened to the buccal surface of the plate, and this was made of rubber that was thick enough so that it would not slip, and still it was elastic enough so that when it was pressed to place it stayed there. The inventor said that every three or four months the rubber bulb had to be replaced, but the patient could chew his food and the plate would remain firm. I tried to see if I could loosen the plate with my fingers, and I could not do it, either above or below. It is a simple thing, and the device is illustrated in one of the Spanish dental journals.

Another thing was an appliance to the head-rest and the chair of a bar that went around the patient and had an adjustable chin-holder, so that by a series of thumbscrews it would take hold of the patient's head and face and put him in a perfectly rigid position, with his mouth open, and the operator could extract one tooth after another without any trouble. It was simple, but very effective, and he could extract a number of teeth in this way at one sitting.

Of course, there were plenty of cases illustrating the making of inlays. Everybody made inlays.

There was another thing I noticed in the clinics, and that was the administration of somnoform by Robinson and Roland, of Bordeaux, and the insensibility of the patient did not last more than from thirty seconds to a minute and a half, but they could extract two or three or four teeth without any trouble. The patient would wake up and walk off without any after-effects. They said they had administered this anæsthetic more than eighteen hundred times in the previous six months to patients coming to the public clinic at Bordeaux. I had read about somnoform, but never saw it administered. It is one of the quickest anæsthetics in its administration I have seen. It is safe. They said they have had no trouble following its use.

Dr. Leon de Laire, of Paris, presented methods of restoration of lost structures, like the inferior maxilla, or the radius, the humerus, the ulna, or some other portion, made out of porcelain and put into the tissues like Michels, of Paris, has proposed for the replacing of necrosed bone, etc., substituting porcelain for one-half of the inferior maxilla where it has been removed. After they had taken the precaution to get the measurements and everything exact, they would use a piece of porcelain corresponding to the size of the bone that was removed, after having previously sterilized it. Here was facial prosthesis at once. He had specimens on exhibition of the whole inferior maxilla that had been replaced by porcelain. He said that at first sight it would seem as though it would be rather dangerous, but he had never seen any accident with any porcelain that had been used, and he exhibited pieces of porcelain showing where the porcelain had been introduced to take the place of the humerus, to take the place of a portion of the ear that had been removed, the skull, and various other places where surgical prosthesis would be permissible.

Dr. Claude Martin presented an essay that was printed, portions of which were read before the dental section, including all kinds of prosthesis of the jaws, lips, nose, skull, etc., in a brochure of one hundred and eighteen pages. I brought that back with me because I wanted to read it.

There were papers on irregularities of the teeth by gentlemen from Italy and Germany; there were papers on jumping the bite and on the treatment of diseases of the gums having their origin at the beginning of the sockets, and there were papers on almost every conceivable dental subject, so that it became necessary to have two meetings going on at the same time. Those who could understand English and French went into one room and those who understood Spanish and Italian, and perhaps some other languages, went into the other room, so that the dental section was divided into two sections. On the last day a Frenchman presided over one portion of the dental section and I presided over the other at the closing. In this way we succeeded in having more papers read than would have been done if only one section had been held. I do not believe there were more than about fifty or sixty who could understand English in the whole section, including the members of the American Dental Society of Europe, so that most of the papers presented were read in French, and short epitomes of the papers were projected on the screen in English and Spanish, so that everyone knew what was going on.

The secretary of the section, Dr. Aguilar, gave a reception to the members of the section, with his sister, in one of the theaters. The theater was handsomely decorated. The section held a banquet and the members were entertained by the dentists of Madrid at a bull fight. We were also entertained by an excursion to Toledo, so that we had an opportunity of seeing all the antiquities in Toledo, the ancient mosque that is still there, etc., and the factory where the Toledo blades are made. We were taken through every department of the shops and given breakfast in the Theater Royale, which was presided over by the mayor and Common Council. There were speeches made in every language, and all of us returned to Madrid in good condition. There was some kind of entertainment going on all the time.

The King gave a reception to all members of the congress at the royal palace, which is one of the finest palaces I have been in, and I have visited Windsor, Buckingham and Osborne Palaces in England, the palaces at Berlin and the Elysian Palace in Paris. But this palace, for situation and general magnificence, surpasses them all. The royal palace is located on the top of a bluff; one can look down into the palace gardens, two hundred and fifty feet below. These gardens comprise eighty acres. It is simply one mass of flowers, with all kinds of trees and plants, beautiful walks and streams permeating the grounds. Entertainment was provided for about fifteen thousand in this garden. There were tables scattered all around. There were five bands of music scattered around the grounds and palace. The foreign minister gave an entertainment, also the minister of public instruction, the city of Madrid, the mayor of Madrid, and there were numerous private luncheons and dinners. There was no excuse for anyone not having been noticed if he had presented the proper credentials.

The opening of the congress was a magnificent and impressive ceremony. Dr. Brophy, Dr. Cryer, of Philadelphia, the English delegates and myself and a few others occupied seats upon the stage, so that we saw everything. The theater is very large, and all around the auditorium at the back are tiers of boxes that are five feet deep, and there are about thirty on each floor, each box accommodating about eight. These boxes were filled with handsomely dressed women and well dressed men. The King, the Queen and the King's sister and two other ladies occupied the royal box. All the official delegates from various countries made brief speeches, except the representative from the United States. Owing to some misunderstanding he did not speak.

The meetings of the American Dental Society of Europe, of the dental boards of foreign countries and of the International Dental Federation will have a great influence on dental education in Spain, because there was hardly any city in Spain but what was represented by someone, and they took a lively interest in everything that was going on, and they were there early and late. The sessions would begin at 9 or 9:15 a. m. and continue until 12:30 or 12:45, so that there would not be any session in the afternoon. In the afternoon there was some social function or entertainment.

DEATH OF DR. HENRY GILL.

Dr. Henry Gill, of Rockford, Ill., died suddenly of heart disease in his office on April 4, 1904. He was in his sixtieth year. Dr. Gill was a most worthy practitioner and citizen in every way, and leaves a large circle of friends who will greatly miss his cheery personality. To his family in particular THE DENTAL REVIEW sends sincere condolence.

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EDITORIAL.

MEMBERSHIP IN THE STATE SOCIETY.

We take pleasure in calling attention to a movement calculated to increase the membership of the Illinois State Dental Society. It is time something was done to bring the number of members up to something like a true representation of the dentists of the State. The society is one of the most progressive of its kind in existence, and it seems unfortunate that so few, relative to the number of practitioners in the State, get the benefit of it. The following is a list of a few Illinois cities, with population, number of dentists and members of State Dental Society.

[Population and number of dentists taken from Polk's 1902-3 Directory. Members of State Society from 1902 Transactions.]

City.	*Population.*	*No. of Dentists.*	*Members of State Society.*
Quincy	36,200	23	4
East St. Louis	29,600	9	0
Aurora	24,100	18	0
Elgin	22,400	17	2
Rock Island	19,500	16	2
Evanston	19,200	13	2
Galesburg	18,600	23	3
Belleville	17,400	9	0
Moline	17,200	9	2
Danville	16,300	15	1
Oak Park	15,600	9	1

City.	*Population.*	*No. of Dentists.*	*Members of State Society.*
Kankakee	13,600	10	0
Cairo	12,500	9	0
Ottawa	10,600	11	0
La Salle	10,400	5	1
Mattoon	9,600	8	2
Waukegan	9,400	5	2
Champaign	9,100	8	0
Lincoln	8,900	10	2
Pekin	8,400	5	0
Kewanee	8,300	5	2
Dixon	7,900	8	1
Monmouth	7,400	7	1
Belvedere	6,900	8	2
Canton	6,500	6	0
Sterling	6,300	7	0
Paris	6,100	5	0
Twenty-seven cities	378,000	278	30
337 other cities	.....	688	00
		966	30

Copy of resolutions passed at the meeting of the Odontographic Society, of Chicago, March 21, 1904.

"*Whereas,* the best statistics that we are able to obtain indicate that not more than thirteen per cent of the dentists practicing in the State of Illinois are members of the State Dental Society, and since there are many reasons why a much larger percentage should be enrolled upon the books of our societies, and

"*Whereas,* we have noted the fact that the Illinois State Medical Society has enrolled almost half of the medical practitioners of the State by an energetic campaign of organization; therefore, be it

"RESOLVED, That the president of the Odontographic Society be instructed to appoint a committee to present this matter to the attention of the Illinois State Dental Society at its annual meeting, and request that that society take up the work of organizing the Dental Profession in this State on lines similar to those followed by the State Medical Society; and, be it further

"RESOLVED, That the Chicago Odontographic Society offer its services to the Illinois State Dental Society in carrying out the work of organization in Cook County."

DR. TAYLOR'S APPOINTMENT.

We are pleased to announce that Governor Yates has appointed Dr. C. R. Taylor, of Streator, as a member of the Board of Dental Examiners of this State, and we hasten to extend our congratulations to all parties interested. Dr. Taylor is one of the sterling practitioners of the State, and the interests of the people will be well cared for in his hands. In making this appointment the Governor has indicated an evident desire to have good, clean men on the board, and this one act will do much toward gaining the good will of the dental profession. When the Governor vetoed the dental bill passed by the last legislature there was a great deal of adverse criticism of his action, but if he will continue to give the people good representative men to look after their welfare in regulating the practice of dentistry in the State it will at least be an earnest of his desire to see that our present laws are well administered.

We congratulate Governor Yates on his appointment of Dr. Taylor.

PRACTICAL THERAPEUTICS.

Dr. J. P. Buckley begins in this issue of THE DENTAL REVIEW a series of articles on the above subject, which we predict will be of great practical benefit to the profession. Dr. Buckley has given much study along the lines indicated and has promised to make his articles as applicable to everyday practice as possible. This series is written in answer to requests sent in from our readers for something on this subject, and from time to time we hope to take up other topics in a similar way.

THE EDITOR'S DESK.

The Miracle of The Buds.

I heard a man remark one time, "I am going to quit work tomorrow and go out to Lincoln Park." When asked what was the attraction at Lincoln Park he said: "Why, don't you know, the buds are coming out." Of course this man was a poet—who else than a poet could make such an event over the annual evolution of buds?

But methinks if we would all study the wondrous phenomena presented by the bursting forth of the buds in springtime, it would make poets of every one of us. What miracle is there greater than this? Today we have a tree with limbs bare and apparently lifeless, the only claim to beauty being the exquisite tracery of outline against the sky, weaving figures and forms of myriad designs, and ever changing with the wayward wind—but bare as the winter's blast can make them. Tomorrow this same tree is all a-tremble with new life, a thousand little bursting bits of green are peeping through the gray or brown of darker days, and the whole is quivering with animation.

If we examine closely each tiny bud we shall see such marvelous handicraft displayed in its evolution that the wonder of it grows more and more as we watch the process. Why do these little formless buds burst their way into shapely leaves? And where does this green come from?—this bright color flashing out upon the air, and clothing the tree in softest films of royal dress. Why is it—but no, do not tell me why. You would make a matter of chemistry of it if you tried to explain it, and I do not care for its chemistry. I am content to dwell with its poetry, and to me there is no more beautiful poem in nature than the miracle of the buds.

DOMESTIC CORRESPONDENCE.

To The Editor of The Dental Review:

Dear Sir:—The communication from Dr. Brophy published in your issue for February 15, 1904, bearing upon some of the incidents leading to the organization of the Fourth International Dental Congress, is in certain respects so incorrect and incomplete as to be misleading, and I therefore request space in your journal to present some further data bearing upon the issues raised. Dr. Brophy's presentation may be naturally divided into two sections, dealing with separate issues: First, that relating to the preliminary steps taken by the National Dental Association in regard to holding an International Congress in connection with the St. Louis Exposition. Second, the personal matter which Dr. Brophy raises with regard to the documents which I delivered to him as one of the three Commissioners appointed by the National Dental Association to convey the invitation of that body to the International Dental Federation in Stockholm. As to the first matter Dr. Brophy states, "By request of Dr. Thorpe a conference of the members of the National Association was held and the question of holding the Congress was discussed." This is incorrect and misleading. What actually happened was that a conference of a few gentlemen holding membership in the National Dental Association was held in Dr. Brophy's private room at Niagara Falls at the suggestion and request of Dr. Thorpe to discuss and consider the propriety of holding an International Dental Congress in connection with the St. Louis Exposition. Dr. Brophy's statement of the case as above quoted would make it appear that the conference was a general one of all the members of the association, which it was not. There were present at the said conference in Dr. Brophy's room the following gentlemen: Dr. J. A. Libbey (the then President of the National Dental Association), Dr. B. L. Thorpe, Dr. H. W. Morgan, Dr. C. A. Meeker, Dr. J. D. Patterson, Dr. J. N. Crouse, Dr. W. C. Barrett, Dr. E. C. Kirk, Dr. A. O. Hunt, Dr. T. W. Brophy, and, if I remember correctly, at least upon one or more occasions (for several meetings were held) also Dr. M. F. Finley and Dr. A. H. Peck. By unanimous consent Dr. Brophy was chosen chairman and Dr. A. O. Hunt, secretary, and they acted in that capacity throughout the several meetings held. Dr. Brophy is correct regarding the fact that the first two resolutions which he quotes were drafted and passed by the meeting to be recommended to the National Dental Association for adoption. With regard to the first resolution, which concerns the relationship of the National Dental Association to the International Dental Federation, I would call particular attention to the form of the phraseology by which the Committee of the Federation is designated, viz., as follows: "The Committee of the Federation Dentaire Internationale, having in charge the promotion of the Fourth International Dental Congress." That form of designation was used in all of the official communications drafted at the meeting of conference of which Dr.

Brophy was chairman and was accepted and adopted officially by the National Dental Association subsequently in the documents which were sent to the Federation bearing upon the Congress. That particular form of designation was the subject of much discussion, and was adopted as indicating as nearly as possible the views of the members present as to the kind of relationship which the International Dental Federation could be properly considered to bear to the work of organization of the Congress. It was very clearly and definitely brought out, and it was the sense of the meeting, that we could not for one moment admit the right of a foreign organization to undertake the actual and practical work of organizing a Congress to be held in this country, especially as the National Dental Association was acting the part of host and was issuing the invitation. It was deemed right and proper and a courteous attitude toward the Federation to ask them to officially designate the time and place of meeting, and to officially baptize, as it were, the Congress as the Fourth International Dental Congress. Further than that, it was considered by all who spoke upon the subject that it was beyond the province of the International Dental Federation to go, and that therefore in issuing the invitation it should be done in a form which would distinctly limit the relations within the lines above specified. With regard to the appointment of the Committee of Organization by the National Dental Association, Dr. Brophy states, "Later, and after the Commissioners had gone to Europe, the following was drafted, 'Resolved, That a committee *of fifteen* be appointed by *the president* of the National Dental Association for the purpose of taking charge of an International Dental Congress *proposed* to be held in St. Louis under the auspices of the Louisiana Purchase Exposition in 1904. Such committee to have full power to commence and continue the work of organization.

" 'This committee when appointed to be for the present a provisional committee subject to the acceptance of an invitation on its way to the committee of the Federation Dentaire International, having in charge the promotion of the Fourth International Dental Congress. In the event of the acceptance of this invitation by the Federation Dentaire International, the said committee to be forthwith clothed with full power to commence and continue the work of organization.

" 'In case of a vacancy by death, resignation or otherwise, the committee shall have power to fill same.' "

The statement that the foregoing resolution was drafted later and after the Commissioners had gone to Europe is substantially incorrect. The said resolution was originally drafted in a meeting of conference by the secretary, Dr. A. O. Hunt, after a general discussion of its provisions and phraseology, it was then proposed by Dr. Hunt, duly seconded and put to a vote of the meeting by Dr. Brophy, the chairman, and carried unanimously.

The text of Dr. Hunt's original resolution is as follows: "Resolved, That a Committee be appointed by the National Dental Association for the purpose of taking charge of an International Dental Congress to be held in St. Louis under the auspices of the Louisiana Purchase Exposition, such Committee to have full power to organize and conduct the Congress; and further,

"That nine members of this Committee be nominated and selected at this meeting of the Association, and that the Committee be given full power to increase their number to fifteen.

"This Committee when appointed to be for the present a provisional committee subject to the acceptance of an invitation now on its way to the Committee of the Federation Dentaire Internationale, having in charge the promotion of the Fourth International Congress.

"In the event of the acceptance of this invitation by the Federation Dentaire Internationale this Committee to be clothed with full power to commence the work of organization."

The foregoing resolution drafted and proposed by Dr. Hunt is a verbatim transcript of the original copy in Dr. Hunt's handwriting, prepared, presented and adopted at the meeting of conference, the original of which was handed to me at that time by Dr. Hunt and is now in my possession. It will be seen from a critical comparison of the resolution of Dr. Hunt with that which was afterward adopted by the association, that the only modifications in the resolution as it was finally passed by the association are, first, as to the number of original appointments on the Committee of Organization; Dr. Hunt's resolution providing that nine members only be appointed, and that they have power to increase their number to fifteen, whereas in the resolution passed by the association the president of the association was directed to appoint the full quota of fifteen at once. The other modification is the introduction of the clause providing for the filling of vacancies by death, resignation or otherwise. In all other respects the resolution creating the Committee of Organization which Dr. Brophy states was drafted "later and after the Commissioners had gone to Europe," is identically the same as that in which he was personally concerned in preparing and was adopted by the meeting of conference at which he presided. Dr. Brophy, whatever his subsequent knowledge, or lack of knowledge may have been as to the appointment of a committee of fifteen, was thoroughly aware of the fact that a Committee of Organization was to be appointed by the National Dental Association with power to organize the Congress, and that it was understood that the powers of the Committee of Organization were to become operative immediately upon receipt of word from him that the invitation which he was entrusted to bear from the National Dental Association to the International Dental Federation had been accepted, and for the further carrying out of that purpose and with a perfectly clear understanding as to that purpose I arranged with Dr. Brophy a cable code so that he could cable to me at once whether the invitation had been accepted or rejected by the Federation. I prepared a cipher code in duplicate, one copy of which I kept and the other copy handed to Dr. Brophy, and in due course of time, under date of August 18, 1902, I received the following cablegram from Stockholm:

"Rhuddlan, Philadelphia,
"Edward C. Kirk, Department of Dentistry,
"University of Pennsylvania,
"Hold, "BROPHY."

The word "hold" interpreted by the code agreed upon by Dr. Brophy and myself is translated as follows: "The Federation Dentaire Internationale accepts the invitation of the National Dental Association of the United States of America to hold the Fourth International Dental Congress in connection with the Louisiana Purchase Exposition in August, 1904." In view of all that had preceded it, the receipt of this official notification of the acceptance of the invitation was necessarily interpreted to put into full power and effect the provisions of the resolution creating the Committee of Organization, and among others, that part of its provisions clothing the said committee with power to "forthwith commence and continue the work of organization." The cablegram of Dr. Brophy was transmitted in substance to the other members of the Committee of Organization and in the light of the foregoing was so interpreted by them.

From the beginning when the first suggestion as to the desirability of holding an International Dental Congress in connection with the St. Louis Exposition was broached and throughout all of the proceedings looking to that event in which the National Dental Association was concerned up until the return of Dr. Brophy from Europe there was not to my knowledge the first intimation by anyone that in undertaking the practical work of organizing the proposed Congress was the National Dental Association or its committee exceeding its proper prerogative. Upon the return of the Commissioners from Europe it was, however, quickly made known that at the meeting of the Federation in Stockholm the Federation had appointed a Committee of Nine consisting of Drs. Truman W. Brophy, W. C. Barrett, Eugene H. Smith, W. Conrad, Gordon White, H. A. Smith, W. R. Windhorst, S. H. Guilford and J. D. Patterson, to assist in the organization of the Congress. The official document received from the Secretary General of the Federation in accepting the invitation of the National Dental Association and appointing the Committee of Nine is in part as follows:

FEDERATION DENTAIRE INTERNATIONALE.
(F. D. I.)

Secretariat Counseil Executif.
Dr. E. Sauvez,
40, rue de la Tour-d'Avergne.

Stockholm, le 21 Aout, 1902.

Extrait du proces-verbal du Conseil Executif.

Il est decide que MM. TRUMAN W. BROPHY,
W. C. BARRETT,
EUGENE H. SMITH,
W. CONRAD,
GORDON WHITE,
H. A. SMITH,
W. R. WINDHORST,
S. H. GUILFORD,
J. D. PATTERSON,

are appointed a Committee to assist in the organization of the Fourth International Dental Congress as representative of the Executive Council appointed in the Third International Dental Congress.

Le Secretaire General
(Signed) DR. E. SAUVEZ.

It subsequently developed, however, that the interpretation placed by the committee of nine, or at least its chairman, upon the definition of the phrase "to assist" in the foregoing document was considerably larger than the ordinary Anglo-Saxon definition of the phrase in question would, in the opinion of the committee of fifteen, admit of. And the committee of nine were evidently reinforced in the position which they had taken of claiming the right to organize the Congress by documents embodying opinions upon the point at issue emanating from the bureau of the executive council of the Federation Dentaire Internationale. The committee of the National Dental Association considered that they had but a single course to pursue and a single duty to perform, namely, to carry to a successful issue the work with which they had been entrusted by the body which created them, or to report back to the association their inability to carry out its instructions, hence arose the conflict of opinion as to the supremacy of the two committees, which by common consent was referred to the bureau of the executive council of the International Dental Federation for adjudication, and Dr. J. D. Patterson, as a committee of one, representing the position of the committee of nine, and the writer hereof, as a committee of one, representing the position of the committee of fifteen, were severally appointed to submit the case in an official letter to the officers of the federation for judgment thereon. The issue was clearly stated in a letter addressed to the federation bureau, drafted by Dr. Patterson and concurred in by the writer hereof, as follows: "These committees met at Cincinnati, Ohio, U. S. A., but were unable to harmonize the different letters of instructions sent out by the executive council of the federation, which appear at times somewhat confusing and contradictory. They, therefore, appeal to the executive council to authoritatively and explicitly state which of the two committees is in charge of the organization of the congress.

"We ask an explicit expression on this subject. We do not seek now for advice, but simply a decision as to which of the two committees shall be supreme and which subordinate. This question answered, we can readily arrange the rest."

The above quotation is made to show the exact status of the questions at issue between the two committees at that time, and for the additional reason that it has been denied that it was the intention of the federation committee to organize the congress. The federation failed to authoritatively decide the question, and the directory of the St. Louis Exposition finally adjudicated the issue between the two committees upon a compromise basis, which has been concurred in by the federation, and the congress is being successfully organized.

Now, as to the second point which Dr. Brophy raises with reference to the letters which I placed in his hands at the time that I handed him the engrossed invitation of the National Dental Association to transmit to the federation at Stockholm, and as to the conversation which passed between us at that time. The first, regarding the number of letters which I gave to him: Dr. Brophy, in his statement, admits (page 173, DENTAL REVIEW, February 15, 1904) that I gave him two letters in addition to the engrossed certificate, one for Dr. Barrett and one for himself. He asserts that these letters "were credentials as delegates to the International Dental Federation and had no bearing on the question of the congress." He further states that Dr. Peck told him that he (Dr. Peck) had given me "four letters, two for me (Dr. Brophy) and two for Dr. Barrett, two of them to announce the committee as Smith, Brophy and Barrett, and two were delegates' certificates from the National Dental Association to the International Dental Federation." I learned of this version of this affair from Dr. Brophy verbally at the Columbus meeting of the Ohio State Dental Society in December, 1902, and knowing it to be incorrect I communicated with Dr. Peck on the question and asked him for an explanation. In due course I received the following:

Chicago, March 10, 1903.

DR. E. C. KIRK.

MY DEAR DOCTOR—Enclosed please find document which I think will be sufficient to settle the controversy between you and Dr. Brophy.

I had forgotten about these things being in the minutes. In overhauling them and getting them in shape for the printer I found the two items I send you. Sincerely,

(Signed.) A. H. PECK.

Chicago, March 10, 1903.

DEAR DOCTOR KIRK.

In reference to the point of controversy between you and Dr.

Brophy as to how many "letters" you were entrusted with for deliverance to Dr. Brophy, I am pleased to submit the following extracts from the minutes of the executive council of the last meeting of the National Dental Association. From minutes of Tuesday morning session the following: The secretary reported that he had informed Drs. Truman W. Brophy and W. C. Barrett of their appointment by the president, with Dr. Eugene H. Smith, chairman, as commissioners, in accordance with resolution No. 2 relating to the proposed International Dental Congress.

From minutes of executive council, Tuesday afternoon session, the following: Dr. Kirk presented the engrossed copy of the invitation to the federation at Stockholm provided for in resolution No. 2, relating to the proposed International Dental Congress. It being noticed that by an error Dr. Eugene H. Smith's name was mentioned last in the commission, it was, on motion, directed that the secretary write three letters, one addressed to Drs. Smith, Brophy and Barrett, respectively, to the effect that Dr. Smith is chairman of the commission and that Drs. Brophy and Barrett, on their arrival at Stockholm, should deliver to Dr. Smith the engrossed copy of the invitation, together with any other official documents entrusted to their care relating to the proposed International Dental Congress. The engrossed copy of said invitation, together with those two letters addressed to Drs. Brophy and Barrett, were entrusted to Dr. Kirk for deliverance to those two gentlemen.

Sincerely,

(Signed.) A. H. PECK.

The accuracy of the foregoing statement by Dr. Peck is further demonstrable by the evidence of every member of the council of the National Dental Association who was present when the two letters referred to were written by the secretary and handed to me to deliver to Dr. Brophy.

Dr. Peck's statement, quoted by Dr. Brophy, is an error which his letters and the transcript of the minutes of the council above quoted fully explain. Had Dr. Brophy treated this part of his contention with ordinary candor, he would either have omitted the publication of Dr. Peck's mistaken statement or have published in connection with it the proper correction by Dr. Peck, a copy of which I forwarded to Dr. Brophy under date of August 5, 1903, at his request, made to me verbally at Asheville at the close of the last annual meeting of the National Dental Association. There were but two letters entrusted to me to hand to Dr. Brophy, and these two letters he received at my hands and they were the letters described by Dr. Peck.

Dr. Brophy further states with respect to the commissioner's certificate that he opened and read it in my presence and was assured by me that it "was correct as written." That version has undergone some alteration and amplification by time and repetition, as will appear from the following. I received a communication from Dr. Brophy immediately upon his return from Stockholm and under date of September 25, 1902, and while he was yet in New York, and in reply to that letter, under date of September 30, 1902, and touching upon the point at issue I wrote him as follows:

"Before I do anything else I want to take up a matter which has caused me no little concern and which has been the subject of much unfavorable comment among the members of the committee appointed by the National Dental Association to act with reference to the Fourth International Congress in St. Louis. When I handed you the official documents relating to the fourth congress, viz., the invitation of the National Dental Association to the Federation to hold said congress, I said to you that it was the desire of the executive council that Dr. Eugene H. Smith should act as chairman of that commission, and that I was instructed by them to convey that information to you. Further, I handed you two letters, one addressed to yourself and the other to Dr. Barrett, containing the minute of the executive council bearing upon that point, and signed by the secretary of the association, and which letters I handed to you and saw you put into your pocket. What became of them? I ask this because I am informed by Dr. Eugene H. Smith, also by Dr. Aguilar, that at Stockholm you asserted that you were without knowledge that Dr. Smith had been appointed chairman. I have waited until your return that I might secure your version of the matter, as evidently some important error has arisen which has caused no little disturbance because of this miscarriage of the purpose of the executive council that Dr. Eugene H. Smith should act as chairman of the commission, of which he was officially notified, as you perhaps know."

Replying to my inquiry, as above quoted, Dr. Brophy states in a letter to me, dated October 6, 1902:

"I received a letter from Dr. Peck early in the afternoon of July 29, in which the committee was named as follows: Dr. Smith, chairman, Dr. Brophy and Dr. Barrett. The only other communication from the council which I received was what you gave me, the commissioner's certificate, which I opened in your presence, as you know. You gave me this certificate just as I was leaving the hotel and assured me it was correct."

In the above quotation Dr. Brophy says, with regard to the commissioner's certificate, I assured him "it was correct." In his communication in your February issue he says I assured him it "was correct as written." I positively deny that I made such an assertion to Dr. Brophy. I can readily understand how, in the hurry and confusion of the circumstances surrounding our interview, he might possibly have gathered an impression which would make it possible for him to take the view which I have quoted from his letter of September 30, 1902, for the reason that he had asked me three or four times during the afternoon of the day of his departure from Niagara Falls to hurry up the documents, which I was unable to do owing to the fact that the penman to whom the engrossing of the certificate had been entrusted had failed to keep his agreement to deliver them to me at 10 o'clock that morning, and it was only within a half hour of the time of Dr. Brophy's departure that I finally got them in their completed form, and it is quite likely that, having gotten the whole business settled and ready for delivery to him, I may have made use of some such expression as 'now we are all right,' or 'everything is all right,' referring to the completion of the details of the preparation of the document, but that he ever asked me whether the certificate was "correct as written," or that I ever said it was "correct as written," I specifically and unequivocally deny. Moreover, the "as written" feature is an evident addendum to the original version by Dr. Brophy, as will be seen from his letter of September 30, 1902.

Immediately after bidding good-bye to Dr. Brophy I went with Dr. E. A. Bogue to the postoffice in Niagara Falls, and with him attended to the posting of a letter to Dr. Eugene H. Smith, at the Grand Hotel in Stockholm, of the same tenor as the ones I had given to Dr. Brophy, informing him of the fact that he had been appointed chairman of the commission to deliver the invitation. The letter to Dr. Smith was registered in the name of Dr. A. H. Peck, secretary of the National Dental Association.

As to the affidavits or other evidences which Dr. Brophy adduces or refers to tending to show that he did not at any time proclaim himself as chairman, I fail to see what bearing they have upon the issue. It would clarify the point much better if he would produce an affidavit showing that he proclaimed that he was not chairman of the commission, and it would be very interesting if he would produce the originals of the letters which I handed him before leaving for Stockholm. EDWARD C. KIRK.

TO THE EDITOR OF THE DENTAL REVIEW:

The March issue of your journal contained a brief statement from Dr. E. C. Kirk that he would, in the April issue, ask space for a reply to the Federation Committee's report and to my letter, published in THE DENTAL REVIEW of February, 1904. Desiring to have an opportunity to reply to Dr. Kirk in the same issue, if a reply became necessary, I wrote to him for a copy of his letter.

In his reply to me Dr. Kirk made use of these words: "Dr. Johnson doubtless will give you access to the copy and I have no objection whatever to his doing so." The letter, therefore, was given me.

Mr. Editor, I would not ask space for a reply to his letter if all the statements made by him were strictly in accord with facts. Many of Dr. Kirk's assertions are so contradictory in themselves that an answer to them seems almost unnecessary; in fact his utter failure to make his statements harmonize can but be clearly apparent to even the casual reader of his letter.

I feel called upon, however, to refer to some statements made by him which are unfounded and clearly incorrect.

The first quotation which I wish to criticise is as follows: "Dr. Brophy states 'By request of Dr. Thorpe a conference of the members of the National Association was held and the question of holding the congress was discussed!' This is incorrect and misleading. What actually happened was that a conference of a few gentlemen holding membership in the N. D. A. was held in Dr. Brophy's private room at Niagara Falls, at the suggestion and request of Dr. Thorpe, to discuss and consider the propriety of holding an international dental congress in connection with the St. Louis exposition. Dr. Brophy's statement as above quoted would make it appear that the conference was a general one of all the members of the Association, which it was not."

I have never assumed that the conference was a general one of *all* the members of the Association. There never was a conference of *all* the members of the Association, and there never will be such a conference. To intimate that I would mislead the readers of this journal and the profession by trying to "make it appear that the conference was a general one of *all* the members of the Association," which would be an impossibility, is a declaration on Dr. Kirk's part as absurd as it is unjust.

It is true that I presided at the conferences while I was there and that at those conferences two resolutions were offered and on motion were recommended to the N. D. A. for adoption and were adopted, one inviting the Federation to designate St. Louis as the place of holding the congress and the second naming three commissioners to convey the invitations.

Twenty-five men were named at Niagara as competent persons to form an organizing committee, but no resolutions were adopted while I was there directing the president to appoint a committee, and we were informed before we left that it was not likely a committee would be appointed until after the question was settled as to whether there would be a congress. The records of the National Association verify this statement.

The resolutions offered by Dr. Hunt were offered after I left Niagara Falls.

The second resolution offered by Dr. Hunt provided "that nine members of this committee be nominated and selected at this meeting of the Association and that the committee be given full power to increase their number to fifteen, this committee, when appointed, to be for the present a provisional committee subject to the acceptance of an invitation *now on its way* to the committee of the Federation Dentaire Internationale, having in charge the promotion of the fourth International Dental Congress."

Dr. Kirk says, "these resolutions 'proposed' by Dr. Hunt, duly seconded and put to a vote of the meeting by Dr. Brophy, the chairman, and carried unanimously."

Let the reader determine how I, the bearer of the invitation, which was "on its way" to the committee of the Federation at Stockholm, could be present when these resolutions were written and adopted, after I left, as the resolutions explicitly state.

I was not present when these resolutions were proposed and adopted, a fact which is easily verified not only by the records, but by the resolutions offered by Dr. Hunt which Dr. Kirk quotes.

Dr. Kirk makes use of the expression "to assist," as used by the Federation officials, in stating the function of the committee of nine.

"According to resolutions thirteen and fourteen of the International Dental Congress of Paris in 1900, the International Dental Federation has the duty of organizing the fourth International dental congress, hence the committee of nine which was named by the executive committee of the I. D. F. at Stockholm in August, 1902, has this mission. The two statements were not in accord, and the confusion made it necessary for the exposition authorities to promptly decide as to who should organize the congress and they delegated the committee of fifteen to do so.

Dr. Kirk has picked from the sentences of the communication from the officials of the Federation such as seem to suit him best, while others, such as the communication above quoted, he has ignored.

Dr. Kirk's statement that "it was very clearly and definitely brought out that it was the sense of the meeting that we could not for a moment admit the right of a foreign organization to undertake the actual and practical work of organizing a congress in this country."

The International Dental Federation is no more a foreign organization than the National Dental Association is a foreign organization to the State of Illinois. With equal propriety might the dentists of Missouri declare that since the congress is to be held in St. Louis they should have full charge of the organization and that no one from other States should participate in the congress except by invitation of the profession of that State and city.

The National Dental Association is part of the Federation the same as the State of Missouri is part of the National Union and had it not been for the widely circulated statements made by Dr. Kirk principally, that this so-called foreign organization, the I. D. F., desired "to undertake the actual and practical work of organizing a congress in this country," a proposition never contemplated, there would never have been any friction or lack of understanding between the International Dental Federation, represented by its committee of nine and the committee of the National Dental Association.

I will dismiss his comments about the letters which he claims to have given me in a very few words. The executive council of the National Dental Association has, after considering the whole question of my relation with the National Dental Association and International Dental Federation meeting in Stockholm, and the letter referred to by Dr. Kirk, resolved that my action in this connection was just and loyal and the officers of the Federation have declared that my course was right and proper.

Having been justified in my course by these two great bodies I am willing to let the matter rest with the profession.

April 8, 1904. TRUMAN W. BROPHY.

NEW YORK LETTER.

April 1, 1904.

MY DEAR MR. EDITOR:

We had an idea that New York and its vicinity had all the dental societies needed, but a new one has been in running order for some time, from which we hope ere long to give you some good reports. It is called the New York Institute of Dental Technique. Dr. F. C. Brush is president this year.

Do not confound this new "institute" with the Institute of Stomatology, which held its meeting on the first day of the month. An informal clinic was given at 4:30 p. m. at the office of Sinclair Tousey, M. D., 103 West Seventy-sixth street. Dr. Tousey is an expert in the use of the X-ray, ultra-violet rays and "high frequency" currents. He exhibited many interesting radiographs and explained in detail the application of the various electrical appliances. One patient was treated by the X-ray in our presence for a congested condition of the gums, which had not yielded to careful dental care. Another patient was presented with an unerupted deciduous molar and radiographs taken to show condition, revealing absence of anything like a permanent tooth. The patient was perhaps twenty-three years old. Dr. Tousey took eight or ten pictures at one time, and by a method of his own developed them in a few moments while we waited to see the result

In the evening, after the usual dinner at the Chelsea, in West Twenty-third street, the society listened to a remarkably clear and concise paper on "Irregularities," by Dr. George Ainsworth, of Boston, Mass.

He said the principles underlying his work were not new, but the *method of application* is.

He claimed that the rising generation needs orthodontia to a very great extent. He advocates specialists in this work. His aim has been to simplify methods and cause little pain. He described the three special features of his method as the arch, the inclined plane and the retainer. The discussion was participated in by Drs. E. A. Bogue, Staley, J. B. Littig, Charles Allan and others. Dr. Allan especially commended the method for its effectiveness, cleanliness and simplicity. Dr. Littig commented upon the fact that the appliance could so easily be removed and the mouth kept clean, congratulating Dr. Ainsworth on having devised so simple and yet so clean an appliance.

We can not refrain from complimenting Dr. Ainsworth, among other things, for the clearness of his illustrations which appeared on the screen with great distinctness.

The regular meeting of the First District Society was held at the Academy of Medicine, 17 West Forty-third street, Tuesday, March 8, with the president, Dr. Hatch, in the chair. It was held in one of the larger rooms because of the needs of the essayist in presenting his illustrations. The paper was entitled "Calco-Globulin and the Part It Plays in the Formation of the Dental Tissues in Health and Disease," by Prof. R. R. Andrews, of Cambridge, Mass. After an exhaustive description of the formation of calco-globulin and its office, a study so deep as to be beyond the scope of the general practitioner, a large number of fine illustrations were projected upon the screen and ably described by Professor Andrews. These illustrations were so clear and so well described that all could understand.

The discussion was opened by Prof. J. Bethune Stein, of New York, followed by Drs. Rhein, Hart, Hatch and others.

Professor Stein said that we really do not know what calco-globulin is; apparently it plays more a physical than a chemical part.

Dr. Rhein claimed that careful attention to the food of the mother during early period of gestation would, through the calcoglobulin, affect and improve the enamel of teeth in the child.

Dr. Hart believed that change of environment was of more value than character of food; claimed that highly organized nervous temperaments and high living had much to do with changes.

The president, Dr. Hatch, suggested four questions for Professor Andrews to answer, one being why no grooves were to be found in deciduous teeth, similar to those frequently found on certain surfaces of permanent ones.

On suggestion of Dr. Hodson, Professor Andrews was asked to answer at some length and incorporate answer in his paper.

Dr. Ottolingui presented before this, as well as the Second District Society, a petition to Congress in connection with the new bill for dentists in the navy. The president and secretary were instructed to sign the petition on behalf of the society.

The regular meeting of the Second District Society occurred Monday, March 14, in the rooms of the Kings County Medical Society, Library building, 1313 Bedford avenue. Brooklyn. The essayist, Dr. J. A. Waas, of Hammonton, N. J., presented a paper, entitled "Five and a Half Years' Further Experience with Pulp Mummification." It seems that about five and a half years ago Dr. Waas presented a paper to the New Jersey State Dental Society on the subject. Having kept quiet since then, despite requests to speak or clinic, he gives his further experience entirely in its favor—*absolutely no failures!* in over two hundred and fifty cases. He said the method could easily be abused by careless operators; said he had over one thousand letters asking for advice and all commending the method; read extracts from some; described various methods which had been pursued, and showed the difference between them—and especially Dr. Herbst's—and the method he follows, which was perfected by a Dr. Soderberg, of Australia, who was a pupil of Dr. Herbst's. Dr. Waas devitalizes the pulp with arsenic, removes contents of pulp chamber, but lets the portion in root canals —now impregnated with arsenic—remain. He then fills the pulp chamber with a mummifying paste, pressing it into the canals, and fills immediately. He does *not* apply the paste to an inflamed pulp, nor use it in an abscesed tooth, but in cases where pulp has been recently devitalized by arsenic; would *not* use it in case of removal of pulp by cocaine pressure anæsthesia.

The discussion was *lively.* A large majority present evidently agreed with the essayist. There were some who did not, however, and spoke against it, among them Dr. John Schmidt, Dr. R. Ottolengui, Dr. J. G. Palmer and Dr. F. T. Van Woert.

Dr. Schmidt had grave doubts as to what becomes of the arsenic which remains in the canals; thought a suppurating gingivitis might ultimately result, call it pyorrhea or what you will. He had found such conditions present after the use of mummifying paste when these conditions had not existed previously; believed that pathological conditions might exist in some of Dr. Waas' two hundred and fifty cases due to the arsenic, which conditions Dr. Waas might not have observed, and still the teeth not ache. He read a letter from Dr. E. A. Bogue, who had expected to be present, in which he said he "did not see how scientific men could accept the method."

Dr. O. E. Houghton heartily commended the method. To date he had had six hundred and forty-two cases. He was more modest than the essayist, however, for he did not succeed in all cases, still the percentage was so large and his patients so comfortable and thankful that he believed it to be a good thing. He described some of his failures and admitted having occasional abscesses as a result; claimed to have had much less pericementitis since using this method than in his former way of filling root canals. He referred to an article on root filling in the December, 1903, "items," illustrated by a number of skiagraphs showing that but few of the teeth had been filled to the ends of the roots, despite the fact that a very careful operator had filled them. He used this to "point the moral and adorn the tale" as between mummification and the usual process.

Dr. Russell thought that the arsenic embalmed the contents of canals, so they became inert.

Dr. Barker spoke emphatically in favor of the method, citing a case where he had a large cavity on the posterior proximal surface of a left upper second molar with pulp exposed. He applied arsenic, removed pulp, using mummifying paste, and filling posteriorly. He did not have to sacrifice a large amount of tooth structure, as would have been necessary had he attempted to cleanse the canals, and the patient was comfortable.

Dr. Hyatt said that of forty or fifty cases where he had used this method none had returned with trouble.

Dr. J. G. Palmer believed the action of arsenic to be too far reaching to be allowed to remain, even in an infinitesimal quantity, in the pulp tissue.

Dr. H. S. Sutphen, of New Jersey, was much interested; had used the method a little while with good results.

Dr. Van Woert spoke very conservatively. If it was all the essayist claimed and if no trouble ensued, he thought perhaps this method might be of much value in some of the very difficult cases where ordinary methods might fail.

Dr. Ottolengui spoke of the method as teaching revolutionary doctrine; said we call dentistry a science; science knows only cold logic. He then asked the essayist some questions based on a scientific aspect of the case, eliciting the statement from Dr. Waas that he is not scientific, that he was never sure that he had the pulp entirely removed from even the central incisors, and therefore preferred the paste.

Dr. Ottolengui differed with the essayist in regard to the word "success" and as to what in such operations constitutes success.

Several speakers had agreed with Dr. Waas that after devitalization with arsenic and removal of contents of pulp chamber quite a degree of sensitiveness often remained in the root. Dr. Ottolengui claimed that this could not be the case if the pulp was dead.

Dr. Waas had about twenty-eight extracted teeth which he had passed around, showing curved roots, and claiming that because of these curved roots it would be well nigh impossible to fill to the apex. Dr. Ottolingui said more than half the exhibit could readily be filled. He described the case of a patient suffering from malaria for over four months. Specialists were unable to help; physicians could find no septic taint, but were convinced that there was mild sepsis. He was finally sent to Dr. Ottolengui to see if his teeth were in order; found an upper molar with large amalgam filling, which appeared to be a devitalized tooth. It had been filled seven years before and given no trouble. On opening it he found buccal roots capped, cotton in lingual root, contents buccal roots dried, no evidence of infection. Cleansed and sterilized. Before, patient had had a temperature each night of 101 to 101½. There was no rise in temperature the night after the operation, nor has there been since. By reason of this and similar cases Dr. Ottolengui believes many teeth supposed to be in order are the cause of obscure disturbances.

Dr. Waas, in closing, reiterated his statement that while he was not scientific his results were good enough for him; said he believed there are hundreds of dentists using the method who are unwilling to admit it. Did not think the remnant remaining in canal as likely to be of injury as broken broaches. Reported a case where he had used the mummifying paste and after awhile patient returned with toothache, which patient located in pulpless tooth, a first molar. Examination revealed decay in second molar. Patient refused to have any more teeth filled, so second molar was extracted, patient retaining in the mouth the "mummified" tooth, and has had no trouble since.

The March meeting of the Odontological Society was held March 15 at the Academy of Medicine, President John I. Hart in the chair.

The essayist of the evening was Dr. M. I. Schamberg, of Philadelphia, on "The Therapeutic Value of the X-Ray in Dentistry and Oral Surgery." His paper was a brief presentation of some cases of general practice, more especially skin diseases, and the results of the X-ray in these cases. It was followed by some very fine stereopticon views of different cases and some of the mouth and teeth.

Dr. Schamberg said there was nothing conclusive about his research thus far as to its value in dentistry, except in a tentative way.

Dr. Sinclair Tousey, of New York, in discussing the paper related a number of his cases and showed how what is called the "high frequency current" might be of more value than the X-ray.

Professor Weisse lamented the fact that the essayist had not found more of pronounced value from a dental standpoint.

Many in the East were invited to attend the first annual session of the New Haven Dental Association, held in Harmonic Hall, Elm street, New Haven, Conn., on March 15 and 16. Those who did not accept the invitation missed one of the most enjoyable events of the season, socially as well as educationally.

New Haven is probably the most active, progressive social town in New England. Yale University contributes largely to this.

The meeting consisted of two day sessions, morning and afternoon each; no evening sessions; clinics and demonstrations the afternoon of the second day; exhibits in the basement of the building, open all the session, which served to detract from the meeting, as some would linger there while the meeting was in progress.

Rev. W. L. Phillips, D.D., delivered the invocation at the opening exercises. Dr. Fred W. Brown, the president, in his annual address hoped for very much from the new organization. The Hon. John P. Studley delivered a pleasing address of welcome, in which each man was given the freedom of the city.

G. Lenox Curtis, M. D., of New York, opened the afternoon session with his paper on "Surgery of the Mouth," in which he dwelt particularly with antrum trouble, describing a case, treated surgically, which had its origin about the incisors of one side of the mouth. Surgical treatment consisted of making incision through the gum over the roots of the first molar large enough to insert one's finger, if necessary, so as to be positive of removing all foreign substances, pus, clots, etc. Even pieces of rubber tubing have been found in the antrum, where they have been treated previously. Dr. Curtis spoke of pyorrhea. Some of the most interesting remarks made were that "septic pyorrhea is very often due to syphilis"; "peridental membrane becomes affected only when pus reaches the bone (alveolus), then pyorrhea is established."

Dr. Swain, of New Haven, in opening discussion said that there was really nothing to discuss on the surgical case, as the doctor had cured it. He recited a case of nasal stenosis, which had its origin, or was due to, alveolar abscess from the incisors. As to Dr. Curtis' remarks about septic pyorrhea due to syphilis, he said that the fusiform bacillus of Vincent is often mistaken for syphilitic bacillus.

R. A. McDonnell, M. D., of New Haven, thought that the syphilitic germ was not yet discovered.

Dr. Henry C. Benning reiterated what Dr. Curtis said in reference to opening well into the antrum, and deplored the extraction of teeth for the purpose of gaining access. As to pyorrhea, he believed it was due to the establishment of pus germs, and said further that one may have pyorrhea in an edentulous jaw. "It is simply restrictive to say that the germ of Miller was the only cause." Simple injection of a saline solution about the necks of teeth by means of a flat, crescentric-shaped hypodermic needle will give wonderful results. If one introduces an anti-toxine the soil can be made sterile.

Dr. Curtis, in closing, said in answer to a question about syringing that he used to do that, but as most of his cases that are sent to him have been treated from one to six years he now operates immediately. In substantiation of his contention about syphilis, he said he always examines the blood under the microscope. Where syphilis is present the cases will not do well until placed on mercurial treatment. One of the worst cases of suppurative gingivitis he had ever seen was due to a gold cap.

The next essayist was Dr. R. A. McDonnell, of New Haven, who gave a very exhaustive and, as Dr. Benning said, "admirable epitome" on the knowledge of the X-ray. Dr. Curtis in the discussion said that his experience with the phenomena was more harmful than good, except for examinations.

Dr. Benning said that cellular marasmus frequently occurred from the use of the ray, which was not evidenced as a burn, there being no apparent change, but that cellular atrophy takes place. He cited a case or cases where deep-seated tumors were not even benefited by the X-ray.

Dr. Skinner, of New Haven, contradicted him as to that, stating most positively that many cases of deep-seated growths have been cured, but recommends excising, then raying. No two cases can be treated alike. He only knows one man who has cured osteosarcoma. For X-ray burns he has found lanolin and olive oil excellent.

Dr. R. Ottolengui, of New York, spoke during the afternoon on "A Few Failures with Pressure Anæsthesia and the Lessons Thereof." He said the talk was more for the purpose of eliciting information to be incorporated in a paper to be read in the West soon. He dwelt to some length on the poisoning of pulps by arsenic. He thought that pressure anæsthesia, logically considered, was purely an anæsthetic surgical operation. After the removal of the pulp it leaves a torn and bleeding remnant. How can we best get rid of that and the hemorrhage and clot which forms subsequently? To immediately fill roots under these conditions he considers hazardous. The successes with pressure anæsthesia were about 96 per cent. Some cases can not or do not anæsthetize.

The afternoon session adjourned at this point and discussion of Dr. Ottolengui's paper was deferred. The subject was opened again at the Union League Club in the evening, to which place all visiting dentists and exhibitors were invited to a reception. The club house is a handsome place and the introductions brought about many pleasant acquaintances. It was early in the morning before some of us got away from our hosts.

The second day's session was opened by Herbert Locke Wheeler, D.D.S., of New York. His paper created more discussion than any of the meeting: "Porcelain Art in Dentistry." He gave the history, physics and chemistry of the subject to some extent, and corrected errors of statements of the past, one of which was crediting the filling of a cavity with porcelain to Dr. A. J. Bolte, of Baltimore, who described how he ground a piece of porcelain to fit, then filled about with gold. The above appears in the *American Journal of Dental Science* for July, 1857.

The present method, it is thought, should be credited to Dr. William Rollins, of Boston, who described his system in 1880.

"Chemically speaking, the high- and low-fusing porcelains are the same," except the addition of flux to the low-fusing. High-fusing are true porcelains.

In Dr. Wheeler's tests the Jenkins shrunk most of all. Jenkins porcelain seemed to be the brunt of his attack.

Dr. Bogue said the term "edge strength" should never have been thrust upon us. If margins of fillings fit, we do not care about edges.

"Jenkins porcelain is a substance that can be relied upon." "Some men judge all work by what they see." "It has sometimes been the practice to grind the surface of inlays, and Dr. Wheeler may have seen such inlays and judged that they were not permanent and showed signs of dissolution."

Dr. Capon, of Philadelphia, said that Dr. Wheeler's paper should have been titled "Science and History of Porcelain Art in Dentistry." As to the many tests for tensile strength that are being made just now, he said there was no value in them. High- or low-fusing bodies should not play any part as to strength—they are all strong enough. As to the loss of shade or retaining of it, it is easy to do either. Probably the best material on the market today fuses at about 2,300. The Close body and enamels were the only ones procurable for many years, but they were very good.

Dr. Ashe, of Brooklyn, N. Y., said it was not the rapid piling up of heat but the accumulation of it which properly fused porcelains.

Dr. Taggart stated some of his experiences with archite cement which were disastrous, also his early preference for the high-fusing materials, but he now uses the low-fusing porcelains mostly.

Dr. Wheeler, in closing, expressed himself as pleased that he had brought a paper that would create interest.

Feldspar will disintegrate in the atmosphere. Why not in the mouth?

The last paper of the session was on "Some Views on the Treatment of Fractures of the Lower Jaw," by Henry C. Boenning, M. D., Philadelphia.

Dr. Boenning was not only an able essayist, but a strong, forceful logician. In defining fracture he said it probably means loss of occlusion.

The treatment of fractures might be accomplished by means of splints or various kinds of wire. The Hammond splint he regarded as best. He prefers to open to the fracture and wire the parts, always keeping them as aseptic as possible.

Dr. William Carmalt opened the discussion. His advice to physicians and to his students was to always call a dentist in cases of fracture of the jaws. The wiring of fractures he regards as a misfortune and does not see any necessity for it. All operations from their inception are a confession of failure. It may be the best we can do, but we may do better.

Dr. J. E. Powers, of Massachusetts, believes there is nothing so good as an aluminum splint, and admonishes his patients to observe one of the cardinal rules of surgery—rest. In his estimation splints were best, as wire is liable to stretch.

Dr. Smith said that in his experience there were 40 per cent of deaths.

When it came time for Dr. Boenning to close the discussion he threw hot shot in all directions. He invited investigation of everything he said during the reading, then proceeded to handle Dr. Carmalt's inuendoes, saying that if that gentleman finds unusual trouble in cases where wiring of parts has been done he practices dirty surgery, for such conditions of sepsis are practically unknown in Philadelphia, and if 40 per cent is the mortality rate in these cases of fracture it is a shame. He then quoted from the references of Dr. Carmalt as to Dr. Harris' experiments in fractures. He said they were all practiced on dead men, and that is a vast difference from the results gotten on the resistant living subject. Dr. Carmalt could never have visited the National Medical Museum at Washington and seen their collection, else he would not have said what he did.

This adjourned the morning session.

THE BURROUGHS.

REVIEWS AND ABSTRACTS.

IRREGULARITIES OF THE TEETH AND THEIR TREATMENT. By Eugene S. Talbot, M.S., D.D.S., M.D., LL.D. Fifth Edition. 581 illustrations. 546 pages. Cloth. Published by the S. S. White Dental Manufacturing Co., Philadelphia, 1903.

This work is so well known to the profession, and has been reviewed in our periodical literature so much that there is little necessity for extended notice at this time. The author states in his preface to the fifth edition that little or no revision has been deemed necessary since the appearance of the fourth edition, and the only change relates to an introduction outlining "the working of the developmental principles governing heredity and environment to facilitate their application to the topics discussed in the different divisions of the subject."

The first thing which impresses one on examining this book is the immense amount of labor performed by the author in its production. The mere examination of books referred to in the text must have involved a great deal of research, in fact the reference to authors is so varied that it becomes somewhat confusing to follow the trend of thought. One of the most attractive features of the work is the long list of illustrations with which the text is so freely interspersed. These are well executed and add much to the interest of the book. The mechanical make-up of the volume is in accord with the well-known reputation of the publishers for excellence in this line of work.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Lance Handles:—Use lances with solid metal handles only. They are easily kept clean. Keep the blade sharp and clean by inserting it into a cork when not in use. HOMER ALMON.

Quick Pickle:—Place work in a glass and nearly cover with hot water. Pour in as much pure sulphuric acid as you have water and by this time your piece will be clean.

OLIVER MARTIN, Ottawa, Ont.

Don't:— Don't expect success in dentistry if you are not minutely apt and perceptive in mechanics. You need not even hope to succeed without these natural tendencies.

H. DARLING, West Bay City, Mich.

Convenient Manicuring Appliances:—Sandpaper and other disks and tooth-polishing appliances used with the dental engine will be found convenient for manicuring purposes.

C. R. TAYLOR, Streator, Ill.

To Prevent an Engine Cord from Slipping:—A little beeswax and resin applied to the engine cord will prevent it from slipping. Try this the next time you are without a rubber rim.

R. M. PEARCE, Rock Island, Ill.

Airchambers:—Smooth, round margins on an airchamber will be less likely to cause soreness than sharp edges. In rubber plate work the airchamber is the measure of judgment and ability.

MARK G. MCELHINNEY, Ottawa, Canada.

Vaseline for Lubricating:—Use vaseline on your handpiece. It will not "run" like oil and soil the bur or your fingers. Also use vaseline on the rubber dam and it can be more easily adjusted.

A. W. THORNTON, Chatham, Ont.

Simple Method of Cleaning Cement Slabs, Etc:—Wash with a cloth saturated with aqua ammonia. This readily removes the cement. The slab or spatula can now be rinsed with water and dried. This method may not be new, but it is effective.

W. S. VAN NOSTRAND, Merrill, Wis.

Method of Removing a Matrix:—After the matrix has been burnished to fit the cavity perfectly, flow hard, sticky wax into it while in place, and then heat a small ball burnisher, sink it into the wax and chill with cold water. The matrix can now be lifted from the cavity without destroying it.

W. O. FELLMAN, Oak Park, Ill.

Preparing Sensitive Labial or Buccal Cavities:—Erosions at the gum margins can be prepared for the insertion of fillings with little pain to the patient by applying dry tannic acid instead of adding glycerin to it. This will not produce any bad after-effects.

J. NELSON PLATT, Gallup, N. M.

Polish for Aluminum.—Procure from a hardware dealer a supply of universal metal polish (Putz Pomade) and apply the smallest amount possible to a thin cotton wheel by means of a piece of wood, upon which a small amount of polish has been placed, and held against the wheel while running the lathe. The polish should be used without water.

J. MILLS, Brantford, Ont.

Concerning Arkansas Stones:—Wash your Arkansas stone with soap and water and never again use oil upon it. While operating keep it on the bracket table and sharpen all cutting instruments, with water only, before using. Water is more cleanly, efficient and presentable than oil. It oxidizes the particles of iron and the oxide aids in producing a keen edge.

W. C. GOWAN, Creemore, Ont.

Method of Making Surface of Wax Smooth:—A smooth surface on a "waxed up case" can be obtained without spoiling festoons or gum carvings by adopting the following method: Smear the surface of the wax with a pellet of cotton saturated in chloroform. Burn off the chloroform with an alcohol lamp or a small bunsen flame. This will leave a smooth, glossy surface on the wax and will not destroy previously carved gums.

H. H. HANCOCK, Merriam Park, Minn.

Convenient Device for Heating Rubber:—Procure an ordinary white china plate about a quarter of an inch thick from a queensware dealer. Cut enough rubber for the case and place on the plate. Then place the plate with rubber on over the vessel used to heat water for washing out the wax. When the water reaches the boiling point the rubber is softened sufficient to pack nicely. The plate holds the heat long enough to pack two full cases. This makes a neat and convenient method of heating the rubber and saves time.

C. E. BELLCHAMBER, Effingham, Ill.

Pressure Anaesthesia:—Another discussion by my Chicago friends, this time on pressure anæsthesia, or pressure cataphoresis, as the essayist prefers to call it, and some of the most efficient adjuncts of the operation not even hinted at. Surely they must have heard of the Clyde Davis method, but they could not have tried it, or there would not have been such general complaint about the uncertainty of the operation, or profuse hemorrhage.

If the pulp is exposed and congested always use adrenalin first and then adrenalin, cocaine and formaldehyde. If slight sensitiveness still remains, another application of adrenalin alone should be made, and will usually accomplish the desired results.

Pressure anæsthesia is not adapted to all cases. The essayist strikes the keynote when he says: *"The liquid must be confined so that on pressure it can go nowhere but into the pulp."* When this can not be effected, do not try it.

C. B. ROHLAND, Alton, Ill.

MEMORANDA.

DEATH OF MRS. PATTERSON.

We regret to announce the death in Kansas City, Mo., of the wife of Dr. J. D. Patterson, Editor of the *Western Dental Journal.* The profession generally will unite in expressing sympathy with Dr. Patterson in his bereavement.

AN OPENING IN CONSTANTINOPLE.

Dr. Frank S. Buckley, who practiced for some years in Chicago, and who went to Constantinople in 1900, is returning to America to place his son in college. This leaves a good opening for some capable man to take Dr. Buckley's practice.

THE CONGRESS.

How much work are you doing for the coming Congress? Remember, only a few more months and the event will be upon us. It will take the united effort of every one interested to make the meeting a success and anything short of success can not be thought of.

NEW DENTAL COLLEGE IN QUEBEC.

Laval University has established at its Montreal branch a department of dentistry to be taught in French. The officers of the new college are Dr. Eudore Dubeau, Dean and Director; Dr. Joseph Nolin, Vice-President and Registrar, and Dr. J. G. A. Gendreau, Secretary and Treasurer.

RETURNING FROM DRESDEN.

Dr. J. F. F. Waltz, who about a year ago went to Dresden as assistant to Dr. N. S. Jenkins, is returning to his native heath to enter practice in Illinois. The doctor has in his association with Dr. Jenkins become quite an enthusiast over porcelain work, but says that the mode of life in European cities does not appeal to him, hence his return.

SOUTHERN WISCONSIN DENTAL ASSOCIATION.

The tenth annual meeting of the Southern Wisconsin Dental Association will meet in Beloit, Wis., June, 8 and 9, 1904. We anticipate a pleasant as well as a profitable meeting and a cordial invitation is extended to all.

C. W. Collver, Secretary,
Clinton, Wis.

NORTHERN INDIANA DENTAL SOCIETY.

The sixteenth annual meeting of the Northern Indiana Dental Society will be held in Huntington, Ind., on October 4 and 5, 1904.

Arrangements are being made to make this the greatest convention ever held in Northern Indiana. Already some of the best talent in the country has been secured.

Otto U. King, Secretary.

INDIAN TERRITORY DENTAL ASSOCIATION.

Indian Territory Dental Association will meet in Muskogee, I. T., May 5th and 6th, to complete the organization of our Society. A number of good papers and clinics will be given. All ethical members of the profession are invited and those in the Territory who are not members are asked to join our Association.

S. A. Long, Corresponding Secretary.

THE RED RIVER VALLEY DENTAL ASSOCIATION.

The organization of dental societies seems to be catching. The above Society was organized March 21st at Crookston, Minn., with a promising outlook for future success. The officers elected were as follows:

Dr. W. A. Robertson, Crookston, President; Dr. J. E. Argue, Red Lake Falls, Vice-President; Dr. J. F. Boles, Crookston, Secretary; Dr. S. Rowan, Hillsboro, N. D., Treasurer.

ILLINOIS STATE DENTAL SOCIETY.

The fortieth annual meeting of the Illinois State Dental Society will be held at Peoria Tuesday, Wednesday and Thursday, May 10th, 11th and 12th. A splendid program, including attractive and unusually interesting features is under course of preparation. The usual fare of one and one-third—certificate plan—will be obtained on all roads in the State and from St. Louis. Remember the date. All reputable practitioners cordially invited.

HART J. GOSLEE, Secretary.

FOX RIVER VALLEY DENTAL ASSOCIATION.

On March 8, 1904, the Fox River Valley Dental Association was organized at Appleton, Wis. There were twenty-five representatives of the profession present and the following officers were elected:

President, Dr. W. H. Chilson; Vice-President, Dr. J. W. Madden, Fond du Lac; Treasurer, Dr. F. R. Houston, Green Bay; Secretary, Dr. Hastings, Oshkosh.

We wish the new organization success.

KANSAS CITY DENTAL COLLEGE.

The Alumni Association of the Kansas City Dental College will hold their annual meeting Saturday, April 30th, 2 p. m., at the college building.

All graduates are invited to be present and participate in a literary and musical program.

The banquet will be held same evening after commencement exercises.

J. P. ROOT, President,
T. E. PURCELL, Secretary.

RECENT PATENTS OF INTEREST TO DENTISTS.

752,378. Casting impressions of the teeth and mouth, Wilber M. Dailey, New York, N. Y.

753,128. Dental plate mold, Owen E. Driscoll, Charlottesville, Va.

753,679. Adjustable dental impression cup, John C. Davis, Reinbeck, Iowa.

753,529. Dental bridge, Frederic Teague, Oakland, Cal.

754,841. Tooth cleaning implement, George C. Bessonet, Channing, Tex.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The South Dakota State Board of Dental Examiners will hold its next regular session for the examination of applicants for license at Aberdeen, S. D., June 9th, beginning at 1:30 p. m. All applicants will be required to insert at least two gold fillings and such other work as the Board may require. Besides the regular operating instruments each candidate is required to bring a bridge of not less than four teeth, including one Richmond crown and one molar shell crown, invested ready for soldering. Application must be made to the Secretary at least one week before examination takes place.

G. W. COLLINS, Secretary,
Vermillion, S. D.

OBITUARY.

I. P. WILSON, M.D., D.D.S.

DIED: At Burlington, Iowa, from heart disease, on March 9, 1904, Dr. I. P. Wilson, in his sixty-seventh year.

It is seldom that we are called upon to chronicle the death of a more estimable member of the profession than was Dr. Wilson. He was well known to a large circle of friends both in the profession and out of it, and his many sterling qualities and lovable disposition endeared him to all who knew him. He took a very active interest in society matters and was a commanding figure not only in his own State but in national and international bodies as well. The respect in which he was held in Burlington is well exemplified by the glowing tributes paid him in the papers of that city, and we can not do better in summing up the chief events of his life than to copy the following account from the *Burlington Hawkeye* of March 10th.

Israel P. Wilson, D.D.S., M.D., of Burlington, Iowa, was of Scotch-Irish and English descent. Jonathan Wilson, his father, was a Quaker farmer of Scotch-Irish ancestry, and a native of Ohio. He located in 1852 at Springdale, Cedar County, Iowa. Dr. Wilson's mother, Mercy Kinsey, was a descendant of John Kinsey, a Quaker from London, England, who was one of the commissioners for the settlement of West Jersey. He arrived at New Castle on the Delaware in the ship Kent, June 16, 1677. The first settlement made by the immigrants from this vessel was at what is now known as Burlington, N. J. A son of John Kinsey became chief justice of Pennsylvania. Mercy Kinsey's mother's name was Lloyd, and she was a descendant of Thomas Lloyd, who came over from England with William Penn, by whom he was appointed first governor (or chief justice) of Pennsylvania.

Israel P. Wilson was born April 12, 1837, at Mt. Pleasant, Jefferson County, Ohio. He received a common school education and then went for one year to the Union school at Tipton, Iowa, and later took a special course at Hopedale College in Ohio. He taught school for three years in Iowa and two years in Ohio. He studied dentistry with Dr. N. H. Tulloss, of Iowa City, then attended St. Louis Medical College one year. He afterward attended Missouri Dental College at St. Louis, and graduated March 8, 1869, receiving the degree of D.D.S. He located at Burlington, Iowa, and has continued in practice there since that time. He received the degree of M.D. from the Keokuk Medical College. For thirty-five years Dr. Wilson has been an active member of the Iowa State Dental Society and has been elected at different times President and Secretary of that organization. He was a member of the American Dental Association, had frequently read papers before that body and was at on time chairman and at another time Secretary of the Section on Histology. He was also a member of the International Medical Congress and was one of the essayists at the World's Dental Congress in 1893. Dr. Wilson was chairman of the committee of three appointed by the Iowa State Dental Society, on legislation, which secured the passage of the present law regulating the practice of dentistry in Iowa. He was also one of a committee appointed by the same Society which went before the Board of Regents of the State University and secured the establishment of the dental department of that institution. For over fifteen years he was lecturer on dental surgery in the medical department of the State University and for six years professor of regional anatomy and dental histology in the dental department. For more than a quarter of a century he had been a regular contributor to dental literature, through the columns of the dental journals.

The doctor had for many years been an earnest Knight Templar and was for four years High Priest of Iowa Chapter No. 1, Royal Arch Masons. In October, 1902, he was elected Grand High Priest of the Grand Chapter of Royal Arch Masons of Iowa, an honor that has come to but few of the craft. He had been married three times. First, November 25, 1861, to Miss Mary A. Ewing, of Smithfield, Jefferson County, Ohio. They had one child, Mary Ann, now Mrs. J. W. Todd, of Minneapolis, Minn. Mrs. Wilson died March 10, 1863. The second marriage occurred May 15, 1866, to Miss Harriet E. Shepherd, daughter of Captain Solomon Shepherd of Iowa City. She died August 26, 1873, leaving three sons, Lorenzo Shepherd Wilson, M.D., D.D.S., now practing dentistry at Elmhurst, N. Y.; Jay Willis, now in business in New Zealand, and Horace Plummer Wilson, Ph.B., M.D., now practicing medicine at Mediapolis, Iowa. He was married again October 4, 1876 to Miss Lavinia Shepherd, a graduate of the State University and a sister of his second wife. They have had four children, Alfred Luman, Chester Lloyd, deceased; Lavinia Hortense, deceased; and Helen.

Dr. Wilson had always been a staunch Republican. He was brought up in the Quaker Church but for the past thirty-five years had been a Methodist, and at various times Superintendent of the Sunday School, and most of the time an official member of the church. He was for three years a member of the Board of Education of Burlington, being also Vice-President of the board. Twenty years later, in 1901, he was again elected a member of the same board for another term of three years.

At the present time Dr. Wilson had been Professor of Oral Pathology and Histology in the Keokuk Dental College.

RESOLUTIONS ON THE DEATH OF DR. I. P. WILSON.

At a meeting of the Burlington dentists held in Dr. Cochran's office in consideration of the death of Dr. I. P. Wilson the following preamble and resolutions were passed:

"Whereas, The dental profession of Burlington in common with all citizens mourn the loss in the death of Dr. I. P. Wilson, a citizen who was beyond reproach and a man devoted to his profession, always ready and willing to give his time and ability to the advancement of science, a close student and a man whose daily application to his work in hand was conscientious, true and skillful. It is with pride we, the dentists of Burlington, can look upon his life as a life well spent and can truly say regarding his efforts, 'Well done, thy reward shall be peace.'

"Therefore, Be it resolved that in Dr. Wilson's death the dental profession has sustained an irreparable loss and the city of Burlington an honest, conscientious and perfectly trustworthy practitioner. And while our hearts are bowed down with sorrow, yet it will be our pleasure to remember his many virtues and qualifications as a teacher and practitioner.

"Resolved, that we, his fellow co-laborers, do hereby extend to the sorrowing widow and members of our deceased brother's family our profound sympathy and condolence.

"Resolved, That the secretary of this meeting be instructed to mail a copy of these proceedings to his family.

"R. L. Cochran,
"O. H. Denise,
"A. W. Dana,
"Committee."

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

A FEW FACTS CONCERNING THE ACTION OF ANTISEPTICS.*

BY HERMANN PRINZ, M. D., D. D. S., ST. LOUIS, MO.

At present it is generally recognized that the breaking down of highly organized bodies, when subjected to proper conditions, is brought about by the activity of minute organisms, the bacteria.

This process is called *fermentation,* or, under certain conditions, *putrefaction.* Both terms are synchronous and are applied to strictly analogous processes. The presence of certain bacteria is instrumental in the production of severe physiological changes resulting in the various vital phenomena known as infectious diseases.

As soon as this fact became recognized, investigators directed their attention to the discovery of agents capable of inhibiting or destroying the action of these germs, thus rendering infected or *septic* conditions perfectly clean or *antiseptic.*

By the term sepsis, then, we understand the existence of a condition in which bacterial infection and its sequelæ, fermentation or putrefaction, is brought about by the presence of germs or their products, while *asepsis* implies an entire freedom of such infection, viz., a *sterile* condition. If a primary septic condition is changed by some method or means which inhibits the growth of putrefactive organisms, *antisepsis* is secured. Consequently, *antiseptics* are chemic agents which merely inhibit the action of bacteria, while *germicides* destroy the vitality of the infective organisms. On the other hand,

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* Read before the Chicago Dental Society.

disinfectants chemically change the poisonous products of the bacteria to some inert compound without necessarily killing the organisms. Thus it will be seen that an antiseptic is not necessarily a germicide or a disinfectant, viz., glycerin will inhibit the growth of certain bacteria and is, therefore, antiseptic, but it has very little or no power to destroy the bacteria themselves or their spores, and, consequently, possesses no germicidal or disinfective properties.

Quite frequently putrefactive processes are accompanied by the production of mal-odorous gases arising through and from the formation of the new compounds. Again, agents are employed to destroy these offensive odors. Such drugs are termed *deodorants.* The true deodorants usually have very little or no antiseptic action, for example, iron sulfate. If an agent is employed for the sole purpose of its cleansing power, either mechanically or chemically, viz., soap-suds, it is termed a *detergent*, while all those chemicals which possess the ability of inhibiting the action of fermentation in general are called *antizymotics.*

It remained with the great English surgeon, Dr. Joseph Lister, to first extensively apply the principles of antiseptics in the domain of surgery, and rightly he is called "the father of antiseptic surgery." The publication of his important paper, entitled "On the Antiseptic Principle in the Practice of Surgery," and published in the London *Lancet* in September, 1867, marks the date of the birth of the true antiseptic era. Great discoveries and inventions, however, which revolutionize existing conditions are seldom the product of a single brain. Watt's invention of the steam engine in 1736 was preconcepted by Papin in 1690, who was the first to apply steam to produce motion by raising a piston; the discovery of America by Columbus in 1492 was merely a following up of prior discoveries made by the hardy Norseman, Lief, the son of Erik, who, about A. D. 1000, followed the route of Bjorne and sailed along the Eastern coast of Canada, discovering Labrador, Nova Scotia and the outlet of the St. Lawrence River. So the discovery of antiseptics is not to be credited solely to Lister. Prior to the publication of his epoch-making essay, the writings of Pringle, Müller, Chaumette, Sivent, Bayard, Caignard de la Tour, Schwann, Pollender, Davainne and Bayer, Pasteur, Panum, Schmiedeberg, Bergmann and others laid the foundation upon which Lister could solidly build his conception of wound treatment.

Carbolic acid was the agent used, upon which the latter relied in his surgical work. Calvert, of Manchester, England, had called repeated attention to the antiseptic properties of this drug; however, the French apothecary, Lemaire, first brought it prominently before the medical profession in 1865 in an essay entitled "De l'acide phénique de son action sur les vegetaux." Tyndall had conclusively proved that the floating matter of the air held in suspension living micro-organisms, and Lister, theorizing upon this supposition, believed that the air contained the germs which were most active in producing infectious diseases. Accordingly, in his original method, which has been appropriately termed "Listerism," carbolic acid was disseminated throughout the operating room in the form of fine vapor, the instruments were placed in strong solutions, and the field of the operation was treated in the same manner. A better knowledge of bacteriology and wider experience soon modified this heroic method, as it was soon found that wounds would heal far better which had not been subjected to this strong, irritating antiseptic, as it lowered the vital resistance of the tissues, thus retarding rather than enhancing the process of healing. In due time it became recognized that absolute cleanliness is the essential feature in combatting wound infection and since about 1890 asepsis stands pre-eminent as the predominating factor in surgical procedures.

To more readily comprehend the effects of a solution, viz., the dissociation of a solid, liquid, or gas in a fluid upon tissue, it is necessary to understand the physical laws governing this process.

When acids, salts or bases are dissolved in a liquid, usually water, the molecules of these compounds break up into *ions.* The resulting solution possesses the property of conducting an electric current and is, according to Faraday, called an *electrolite.* When such a current passes through the electrolytic solution, the latter undergoes certain changes which are generically termed *electrolysis.* If, on the other hand, a liquid has not the power of dissociating molecules into ions it can not conduct an electric current. Now, according to Arrhenius, the conductability of an electrolyte is proportional, depending upon (1) the number of ions, (2) the relative electric charge of these ions, and (3) the speed of the ions. Further, the resulting ions depend, within limits, on the degree of dilution of the solution; a certain definite dilution dissociates completely all molecules, and further dilution merely separates the ions further from each other. For example, if sodium sulfate ($Na2\ So4$) is dissolved in water, two positive Na ions (Kations) and one negative So4 ion (Anion) are the results. Water has, so far as known, the greatest dissociating power with the possible exception of hydrogen peroxid; however, formic acid, methyl alcohol, ethyl alcohol, ammonia and others are known to possess this peculiarity to a greater or less degree. The organic compounds are much less dissociated than inorganic salts and their ions are more complex and very little understood at present.

Although all definite soluble bodies have more or less the same property, at present we can only speak of the salts of the metals and alkalies with some positive knowledge. If we separate two solutions of salts of different concentration by a permeable membrane, e. g., parchment paper, a continuous current of salt and fluid results, which ceases only after equal *osmotic pressure* (according to Boyle-van't Hoff's law) on both sides of the membrane is established. The current passes in both directions, drawing salt from the stronger to the weaker solution and water *vice versa* until *osmotic equilibrium* is established. The two final solutions are called *isotonic.*

The cells of the vegetable organisms are surrounded by colloid membranes, which are more or less permeable to fluids; much, however, depends upon the cell wall, the surrounding liquid and the affinity of the cell contents. As stated above, not all salts possess the same power of diffusion. To make this statement plainer, let me cite the following example: if a concentrated solution of magnesium sulfate is taken internally, osmotic action in the intestines is set up, water is absorbed from the blood, the bowel becomes distended, the weight increases, promoting vigorous peristalsis, which results in evacuation. If, instead of a concentrated solution of the salts, a weak solution were ingested, it would have only a very mild or no effect at all.

The practical application of the above theories of physical chemistry in relation to the action of the metal salts upon bacteria is very significant. Our present knowledge on this highly interesting subject is largely the result of experiments of Paul and Krönig, which were published in the various scientific journals. It is impossible to relate the details of these experiments. Yet I will dwell upon a few more important points. As subjects for experiments, the authors used the spores of *anthrax* and the staphylococcus pyogenes aureus (a pus organism). Now, if we remember that an electrolyte in solution is dissociated into its ions only in part, when the solution is not infinitely diluted, then the effect of this solution must be attributed to the combined action of the ions and the undissociated molecules present in it. Paul and Krönig investigated first of all the role played by the ions or the undissociated molecules in the disinfectant solutions. For this purpose the germicidal power of several mercury compounds which are dissociated to different degrees in aqueous solutions was examined.

The following short table gives the names of a few of these compounds, arranged in the order of their decreasing degree of dissociation:

1. Mercuric chlorid, Hg Cl_2.
2. Mercuric bromid, Hg Br_2.
3. Mercuric cyanid, Hg (CN)2.

If the germicidal action of the halogen ions and the undissociated molecules is slight as compared with that of the Hg ions, then the disinfectant action of these solutions will be dependent in the main upon the concentration of the Hg ions, that is, upon the degree of dissociation of these salts.

We may conclude from these experiments that the greater the dissociations of the mercury compounds, that is to say, the greater the number of mercury ions present in the unit volume of the given solution, the greater is its disinfectant action. Similar results were obtained by Paul and Krönig with silver, gold and copper salts.

The investigation of the germicidal action of acids and bases has also brought many interesting facts to light. A few of the general conclusions drawn by Paul and Krönig from their experiments are the following:

1. The germicidal action of solutions of acids runs parallel to that of their degree of dissociation; that is to say, parallel to the number of hydrogen ions contained in the unit volume of solution. The anions, and also the undissociated molecules of hydrofluoric, nitric and trichloracetic acid have a specific toxic effect upon bacteria. This, when compared with the germicidal effects of the hydrogen ions, becomes insignificant with progressive dilution.

2. The disinfectant action of bases, such as calcium, sodium, lithium and ammonium hydroxid, runs parallel to the number of free hydroxyl ions contained in the unit volume of solution.

As is the case in every investigation, new problems arise here also. Thus, for example, it has been found that while such salts as corrosive sublimate or silver nitrate when dissolved in absolute methyl or ethyl alcohol have only slight germicidal powers corresponding to the slight dissociation in these media, aqueous solutions of these salts show an increased disinfectant action when a not too large amount of these alcohols is added to them.

Very noteworthy, and as yet unexplained, is the increase in germicidal power shown by aqueous carbolic acid solutions when sodium chlorid is added to them. This fact, first discovered by Scheurlen, was later exhaustively studied by Niardi, Beckman, Paul and Krönig, Scheurlen and Spiro, and Spiro and Bruns. The more recent investigations of Paul and Krönig have shown furthermore that the addition of organic salts diminishes the germicidal power of phenol solutions less than the addition of inorganic salts, and that the phenol solutions which contain the sodium salts disinfect more strongly than those which contain potassium salts.

Another important feature relative to the action of poisonous solutions upon bacteria is the temperature of the solutions. It has been shown by various investigators that the variation in the reaction velocity at various temperatures between a tissue and a poison are, to a large extent, determined by the temperature of the solution.

Heider, for example, found that anthrax spores which had not been destroyed after an exposure from thirty to sixty days to the action of a 5 per cent carbolic acid solution at room temperature were killed after three minutes when the temperature was raised to 167° F. It is further proved by Koch, Röse and others that a mercuric chlorid solution or normal saline solution, when heated to body temperature,, increases their antiseptic capacity twofold.

At present we are not able to explain the influence of temperature upon the velocity of the action of various therapeutic agents. The great practical importance of this fact is obvious, however, and should receive proper attention in the daily routine of a clinical practice. Further, it is of importance to remember that the resistance of the cell wall of the lower vegetable organisms, more so of their spores, is much greater to osmotic pressure than is the resistance of the cell wall of the higher organized beings. To search, therefore, for an ideal antiseptic which will chemically inhibit or destroy the growth of micro-organisms without seriously injuring the cells of the host is, according to the conception of the present biologic laws, equally fruitless as is the search for perpetual motion.

From the large and rapidly growing class of those agents which are generically termed "antiseptics," I have selected for my present consideration one single group only, the metal salts, partly because they are utilized quite frequently in the daily routine of a dental practice and partly because we are able to explain, to some extent, at least, their disinfectant action on the plausible basis of their simple chemic nature.

The salts of the heavy metals form an important group of those agents which collectively are known as antiseptics. Metals as such do not induce any serious symptoms in the living organism unless their salts or oxids are formed. Mercury, copper, silver, etc., may pass unaltered through the body without causing poisonous effects. As stated above, it is not the concentration of the solution alone, but also the specific action of the metal-salt which influences its power as a disinfectant, e. g., mercury chlorid. If the ion of the metal-salt solution is very complex, it is less concentrated and, in consequence, less active, e. g., mercury cyanid.

The *local action* of the metal-salts depends largely upon the formation of metallic precipitates when brought in contact with proteids or albumen. Usually these newly formed metallic albuminates are insoluble in water; some, however, are soluble in an excess of proteids, e. g., mercury, and some will dissolve in solutions of neutral salts (sodium chlorid) or organic acids (tartaric or citric acids). When a solution of a metal-salt is applied to mucous membrane or to the surfaces of a wound, the albuminates are at once precipitated and the acid with which the metal is combined is set free. Thus a continuous film is formed over the surface, which acts as a mechanical protective to the parts involved, lessening the penetration of the solution to the deeper structures. The free acid acts as an irritant, which stimulates the circulation of the part, thereby increasing the cell activity and effusion of exudates. The germs present, being largely albuminous in their nature, are acted upon in the same manner as the superficial cells; they become coagulated and the surrounding medium is changed simultaneously to an unfavorable pabulum for the new growth of bacteria. The liquid exudates, being freed from their proteids, become more diffusible and more easily absorbed; the blood vessels slightly contract and become less permeable.

The same metals attached to different acids induce different effects, depending upon the free acids, e. g., the milder acetic acid formed from lead acetate is more of an astringent than the stronger nitric acid formed from lead nitrate. This latter acid is highly corrosive and acts as an irritant. The action of the various acids attached to one metal differs widely, so much so that all intermediate stages from a mild astringent effect to a widespread necrosis may be produced. The chlorids and the nitrates form the most corrosive acids, the sulfates are milder, while the iodids and bromids are still less irritating. The mildest acids are those formed from the organic salts.

The albuminates of the metals do not irritate unless the poisonous effect of the metals themselves are manifested. The toxic properties of the more important metals may be arranged according to the following scale, starting with the mildest one: iron, aluminum, lead, copper, zinc, silver, mercury, etc. The organic metal compounds and the double salts of metals do not precipitate albumen, they do not irritate, and only slowly dissociate and diffuse over the parts. Within recent years, through the investigations of Bredig, solutions of very pure metals in water have been introduced for antiseptic purposes. These solutions are variously termed colloidal solutions, pseudo-solutions, or simply sols. It seems paradoxical to speak of a water-soluble gold, silver, mercury, etc. It must be borne in mind, however, that such solutions are merely *mechanical suspensions* of extremely fine particles of metal, viz., metals in their amorphous state in water. Accordingly, these pseudo-solutions of colloids (so termed because glue, of which the Latin term is colla, belongs to this group) are physically different from true solutions, viz., the crystalloids. Most likely the application of metals in their colloidal state will gain some prominence in the near future. Silver, mercury, copper and iron are produced at present in this form, and no doubt gold and others will soon follow.

For some time past chemists have endeavored to remedy the irritating properties of the inorganic metal salts by preparing synthetically organic metal compounds. In the last few years quite a number of these compounds have appeared upon the market, especially organic salts of silver. Some of these compounds give extreme satisfaction and it seems safe to prognosticate a future for their general use.

The foregoing attempt to explain the antiseptic action of the metal salts is based upon the laws of physical chemistry. It must be borne in mind, however, that these laws are continually shifting or, as the famous Frenchman, Renan, puts it, "chemistry, like all that is organized, is subject to the law of gradual development." One other serious problem with which we have to deal almost exclusively in experimental work in the laboratory is the fact that the test tube never can resemble the living cell and that all statements concerning abstract laws of biology can not, *a priori*, be taken as absolute facts.

To explain "life" upon a mechanical theorem is a failure. In conclusion, let me quote a few sentences taken from the work of the great Bunge, which bear a close significance to the point in view: "I think that the more thoroughly and conscientiously we endeavor to study biological problems, the more we are convinced that even those processes which we have already regarded as explicable are in reality infinitely more complex and at present defy any attempt of mechanical explanation. Thus we have been satisfied to account for the absorption of food by the alimentary canal by the law of diffusion and osmosis. But we know that, as regards osmosis, the wall of the intestine does not behave like a dead membrane. We know that the intestinal wall is covered with epithelium, and that every epithelial cell is in itself an organism, a living being with the most complex functions. We know that it takes up food by the active contraction of the protoplasm in the same way as observed in independent naked cells."

THE NECESSITY FOR EARLY TREATMENT OF MALOCCLUSION.*

BY LLOYD S. LOURIE, D. D. S., CHICAGO, ILL.

The highest ideal of the dental profession should be the normal permanent dentition, and all effort in the various departments of dentistry should be with the ultimate idea of approaching this ideal. The illustration, Fig. 1, is from a skull in the possession of Dr. R. Summa, of St. Louis, and I believe it is destined to be even more famous than that one of Dr. Cryer's, with which many of us are familiar. Such a picture can not fail to interest a gathering like this; not only because we admire the beauty of the teeth, individually and collectively, and because they suggest a corresponding harmony in facial development, but also because we appreciate that here is a set of teeth capable of performing all of the functions for which Nature designed them. The value of such a possession, to any individual, can not be estimated from either the utilitarian or the æsthetic point of view, and certainly one of the most profound responsibilities of the dental profession is the supervision of the permanent dentition during its development.

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* Read before the Odontographic Society of Chicago.

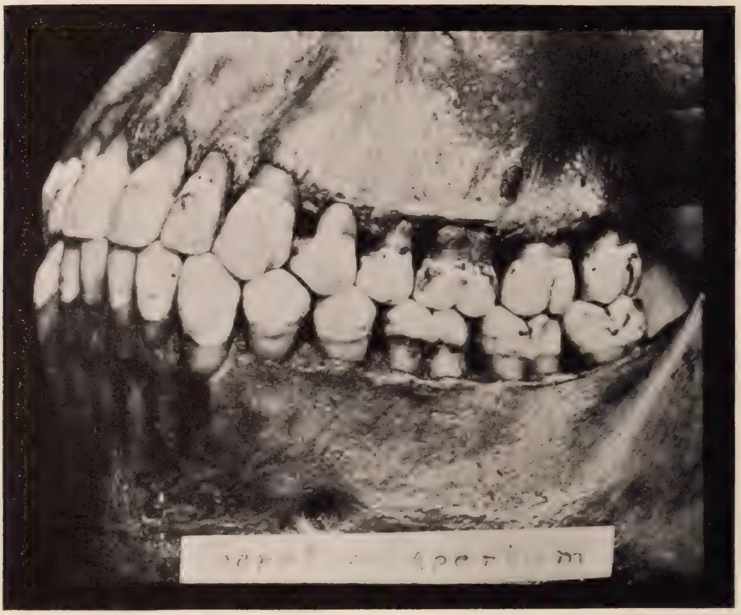

Fig. 1.

This being true, we must feel some concern when contemplating the prevalence of mal-occlusion and consequent facial deformity. It has been said, and by no less an authority than Dr. Edw. H. Angle, that "a little intelligent attention early in life would have prevented at least 95 per cent of these troubles." This is an embarrassing situation that confronts us. Of course, all such cases have not been under dental care, but still it must be admitted that there is entirely too large a proportion of them for which dentists are responsible. It is quite evident that there is not a proper appreciation of the necessity for early treatment, for in general members of the profession continue to advise delay or neglect to give any advice at all, and the results are everywhere about us in extensive mal-occlusion, and frequently permanent deformity to dental arches and face.

The responsibility for this state of affairs rests largely upon that disastrous teaching which states that "treatment should be deferred till after the eruption of all of the permanent teeth excepting third molars," and that "from twelve to twenty years of age is the most favorable time for correction of irregularities." This idea has, in the past, done so much harm and is, even now, so prevalent that it should receive serious consideration, and if this paper should cause such discussion as will clearly explain the fallacy of the doctrine, it will have served a worthy purpose. The explanation usually given for delaying treatment, and one that is most convincing to patients, is that "growth of the jaws will provide plenty of room for the teeth."

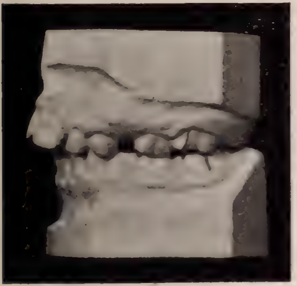

FIG. 2.

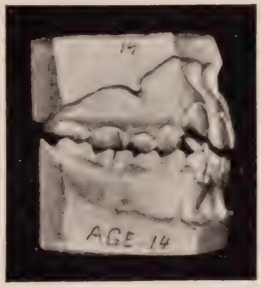

FIG. 3.

It is not strange that such advice is accepted readily, for it sounds plausible until we stop to consider the manner of development of the dental arches, and growth of the alveolar process and adjacent bones.

In the first place it is well known that the alveolar process develops only sufficiently to accommodate the teeth in whatever positions they may assume, consequently it is folly to expect any more room for crowded teeth simply by development of the process. In the jaws, as in all living bodies, there is an inherent tendency to growth that will manifest itself to some extent, even in spite of obstacles, but where there is mal-occlusion of the teeth this is more than counteracted by the diminished efficiency of two most important factors in jaw development. One of these is the wedging influence of teeth erupting into their proper positions in the dental arches, and the other is the stimulus of normal use in mastication. It is not unusual to find that any lateral movement for the proper use of the molars is quite impossible or that the incisors can not be used at all. When once the arch is broken, even by only one tooth in mal-position, it is liable to contraction and there is a perversion of the forces that would otherwise develop the jaws by wedging against or into a normal arch.

For instance, if at the time for eruption of the first permanent molar, any of the deciduous teeth have been lost or have been diminished in size by proximal cavities, the erupting molar simply moves mesially, Fig. 2, contracting the defective arch, instead of developing the jaw by wedging in behind a complete arch. Premature loss of deciduous incisors, or delay in eruption of permanent ones, allows the sides of the arch to close in upon the space intended for the permanent incisors, and when they erupt they are unable to perform their normal function in development. The early loss of a deciduous cuspid will almost always cause a forward movement of the bicuspids and molar, Fig. 3, and the permanent cuspid is unable to wedge into the arch to perform its part in development. Then the first molar having moved mesially, very little exertion is required of the second molar in making room for itself, and development fails accordingly. Those cases in which there is apparent need for enlargement of the jaws in order to accommodate the teeth are the very ones in which development will not take place unaided, and, in fact, the correction of the mal-occlusion is necessary in order to promote such growth.

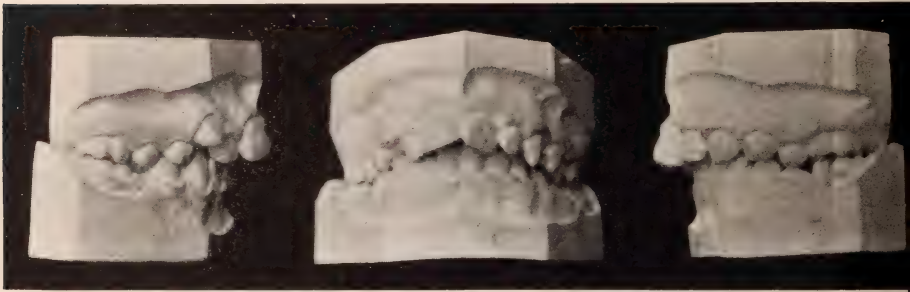

Fig. 4.

Mal-occlusion is almost invariably progressive, especially during the period of development of the dental arches, consequently delay in treatment means exaggeration of its harmful effects and often irreparable injury. Defects in speech and facial expression many become so confirmed that most determined effort of the will is necessary to overcome them, even after the teeth are placed in normal occlusion. The same is true of the habit of lower lip-biting, which is often such a serious obstacle to retention of incisors. The following illustrations are but a few among countless cases that might be shown as evidence of the damage that may be done before the ages of twelve, thirteen or fourteen years.

CASE I. Age 12. Fig. 4. Premature loss of deciduous lower molars has allowed retrusion of the lower cuspids and incisors, making it impossible for the bicuspids to erupt normally and allowing a contraction of the upper arch in its effort to conform in size with the lower. Had there been provision made to retain the space left by the loss of the deciduous molars, certainly most of the present complications and possibly all of them would have been prevented. The early treatment of the teeth would have avoided the imperfections in development and function of the lips and the boy would have been spared several years of embarrassment resulting from defects in speech and appearance.

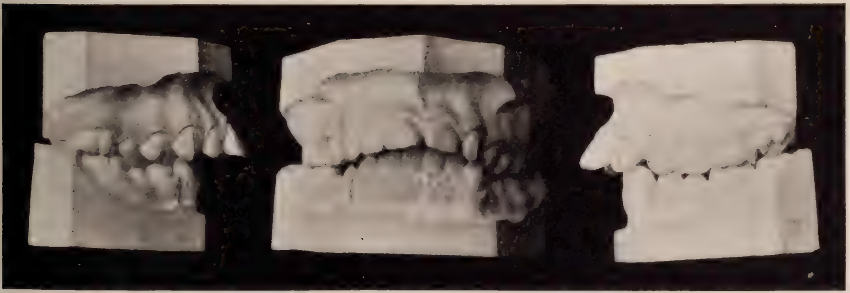

FIG. 5.

CASE II. Age 14. Fig. 5. Retrusion of lower anterior teeth and protrusion of uppers have resulted from thumb-sucking. The upper left lateral has failed to develop or at least is not now present. If the case had been treated in its first stages, two difficulties of considerable importance would have been overcome much more easily than at present, the retraction of the upper left cuspid and first bicuspid and the retention of the upper incisor. The necessity of making space for the missing lateral would also have been avoided.

The defects in the lips, consisting of a thickening of the lower, and lack of function in the upper, together with a serious imperfection in speech, are further evidences of the harm resulting from delayed treatment.

Case III. Age 12. Fig. 6. Lack of development in both upper and lower incisor regions. Such cases should be treated during the normal period for eruption of the incisors and delay means extension of the time required for treatment. In this particular case the delay has further resulted in deformity of the lips that will probably never be restored to normal. At this age, or later, improvement in the condition of the lips depends more or less on an effort of the will in using them properly, and this patient happens to be of that happy, careless disposition that neglects to make such effort. Several years earlier the lips would readily have accommodated themselves to the new positions of the teeth without any special effort.

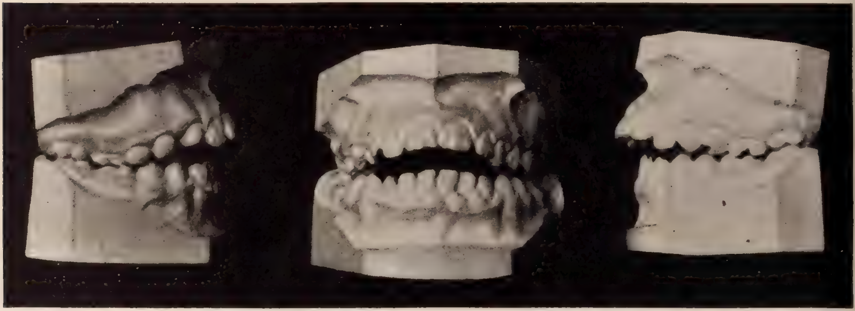

Fig. 6.

Case IV. Age 12. Fig. 7. Distal occlusion of the whole lower arch and retrusion of the lower jaw. Delay has complicated the case by allowing an excessive over-bite of the incisors. The trouble probably started with the eruption of the first permanent molars, and, when we reflect that a very little treatment would have been necessary at that time, we must appreciate the grave injustice that has been done the patient by those years of delay. Had treatment been undertaken when mal-occlusion was first apparent, the necessity for "jumping the bite" might have been avoided, at least that operation would have been much less difficult, for the structures of the temporo-maxillary articulation would have been more yielding and ready to accommodate themselves to change. In this face a deficiency is evident even to those who might not take the trouble or be able to analyze it. It is a common occurrence for traits of character to be attributed to individuals because of peculiarities in facial expression, consequently it is a great misfortune that any child should be allowed to develop such a deformity as this or that it should be allowed to remain a false index of character for several years as in this patient.

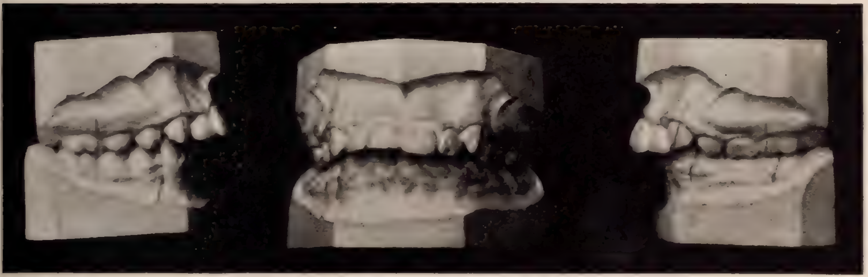

FIG. 7.

CASE V. Age 13. Fig. 8. Distal occlusion of entire lower arch and retrusion of lower jaw. All of the comment on the preceding case will apply equally well to this one, but it is additionally complicated by contraction of the arches and such extensive defect in lip development as to constitute one of the most difficult problems in treatment. There is a lack of function in the upper lip and extreme thickening and over-development of the lower lip. This lower lip has developed to such an extent that it must necessarily be much too promi-

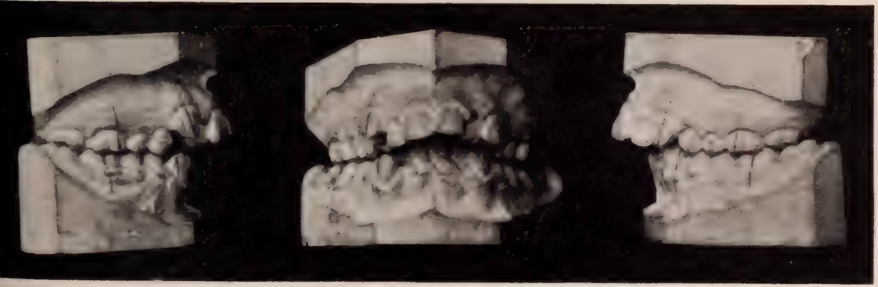

FIG. 8.

nent after the correction of the mal-occlusion and it may not be possible to ever reduce it to normal size.

Case VI. Age 13. Fig. 9. Distal and lingual occlusion of the entire upper arch, the only points of contact between upper and lower arches being the upper first molars, with the lower second molars and the upper central incisors with the lower ones. Nasal troubles resulted in lack of development of the superior maxillary bones, and that interfered with the development of the dental arch, but, in turn, this irregularity of the teeth prevented the growth of the bones that would have resulted from the enlargement of the dental arch, and the proper use of the teeth in mastication. As would be expected in such a case, there was considerable interference with speech. The defects in facial development are shown in the photographs. This is an interesting study in the interdependence of the jaw and the dental arch during their development, and should suggest the necessity for early treatment by both the rhinologist and the orthodontist.

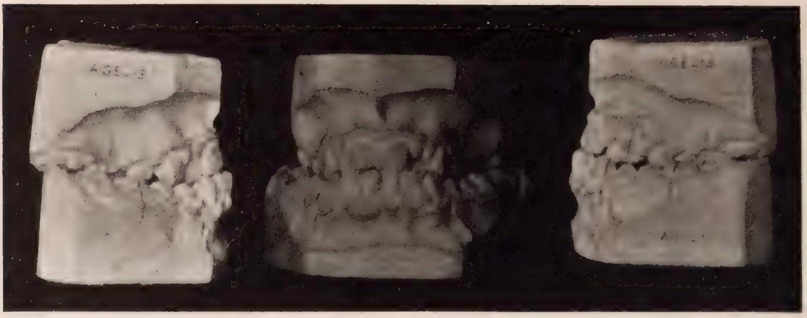

Fig. 9.

Now, it is not my intention to detract from the value of treatment for such cases as these, or of even older patients, for there are few cases in which gratifying improvement may not be obtained. However, delay increases the difficulties of both treatment and retention, and it is obvious that there are many defects in development for which corrective treatment can never entirely compensate, and for that reason there is an urgent necessity for preventive precautions and early treatment. Is it not unreasonable, anyway, to allow Nature to do the best she can against increasing difficulties, and then tear down and make over the results of her efforts, when development might progress along normal lines if given a little assistance as obstacles are encountered? At the time of the eruption of each tooth the tissues surrounding it are in the most favorable condition and readily accommodate themselves to any change in the position of the tooth, with a minimum of disturbance in their own development. Every tooth in mal-occlusion is a predisposing cause of mal-occlusion in those yet to be erupted, while with all of the erupted teeth in normal positions. those following are quite likely to erupt into normal occlusion also.

The eruption of the first permanent molars is the first critical period in the development of the permanent dentition, and from that time on. in the supervision of children's teeth, careful inspection of the occlusion should form an important part of each examination in order that tendencies to mal-occlusion may be detected and counteracted. We know the normal relation between the upper and lower first molars and it must be established and maintained, if the two dental arches are to develop in normal occlusion. This matter has been so fully explained during the past year in papers by Dr. Angle (*Cosmos,* March, 1903) and Dr. Bogue (*International Dental Journal,* April, 1903) that it will not be repeated here. We know the usual times for shedding of deciduous teeth and eruption of their permanent successors, and we know that if the first occurs prematurely, or the second is delayed, there is likely to be mal-occlusion, consequently, under such circumstances, retention should be provided for at least as much space as was occupied by the deciduous teeth.

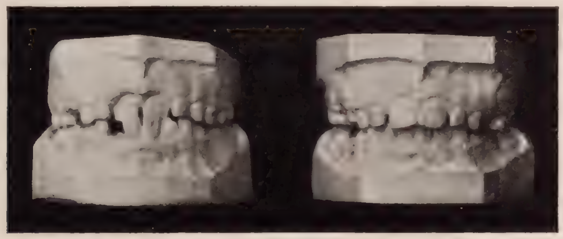

FIG. 10.

Should precautions fail to prevent mal-occlusion, treatment should begin without delay, that normal development may be encouraged and complications avoided. The following cases illustrate some of the advantages of such procedure:

Case I. Age 8. Fig. 10. Lingual occlusion of upper central incisors and crowding of lower incisors. This condition interferes with the normal use of the teeth and jaws and might cause the habit of biting forward, resulting in mesial occlusion of the entire lower arch. Correction at this age is a simple matter, and allows development to progress normally. Time occupied in treatment of upper teeth. three weeks; of lower, five weeks.

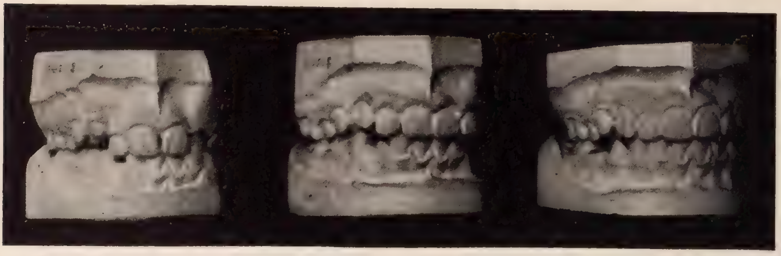

Fig. 11.

Case II. Age 8. Fig. 11. Premature loss of deciduous cuspids has allowed the molars and bicuspids to move mesially and the incisors to move lingually, decreasing the space for the permanent cuspids to such an extent that they would undoubtedly have erupted in labial occlusion and caused still more contraction of the dental arches.

These complications, with the accompanying difficulties in treatment and retention, have been avoided by simply expanding the arches enough to restore and retain the space that should have been preserved by the deciduous cuspids.

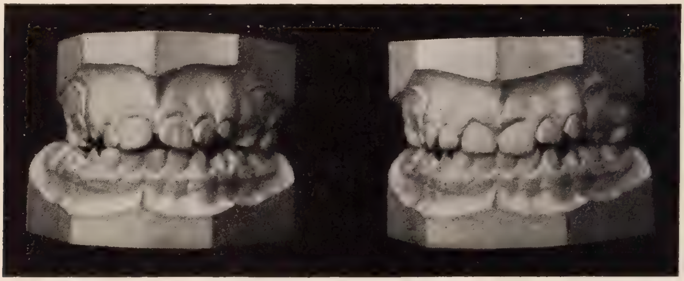

Fig. 12.

The second illustration shows the case at the completion of the eighth week occupied in treatment, and the third one shows the condition a year later.

Case III. Age 11. Fig. 12. Contraction of the upper arches prevented comfortable closing of the jaw in normal position and there has been developed the habit of biting off to the right side, and of holding the jaw in that position. Further delay would have allowed the upper right cuspid and bicuspids to erupt into lingual occlusion with the lower teeth, establishing in the occlusion and face deformities that are most difficult to correct. Three weeks' expansion of the upper arch allowed the lower jaw to assume its normal position, and after six weeks the first molars and incisors are in such improved occlusion that the remaining teeth will be erupted normally. The photograph shows the deformities of lower lip and jaw, both of which were corrected by the treatment of the teeth.

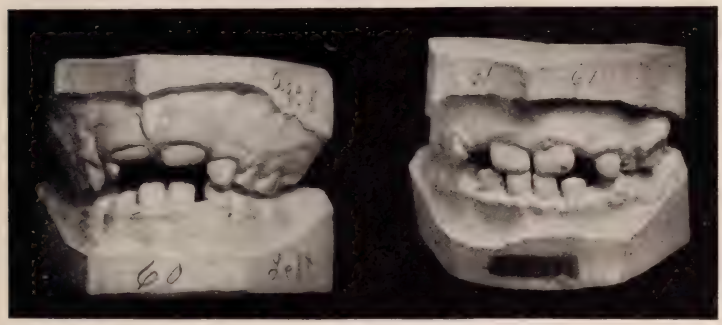

Fig. 13.

Through the kindness of Dr. Milton T. Watson, Detroit, I am able to exhibit the following three cases treated by him:

Case IV. Age 8. Fig. 13. Premature loss of deciduous incisors has caused contraction of the arches, making it impossible for the permanent lateral incisors to erupt into normal occlusion without assistance. Expansion of both arches restored them to normal size, providing space for the permanent lateral incisors, and partially compensating for a lack of development of the jaws, due to the conditions accompanying adenoids, with which the child was afflicted. Time occupied in treatment, twelve weeks.

Case V. Age 7. Fig. 14. Left half of upper arch forward of its normal position relative to the lower, the width of one bicuspid.

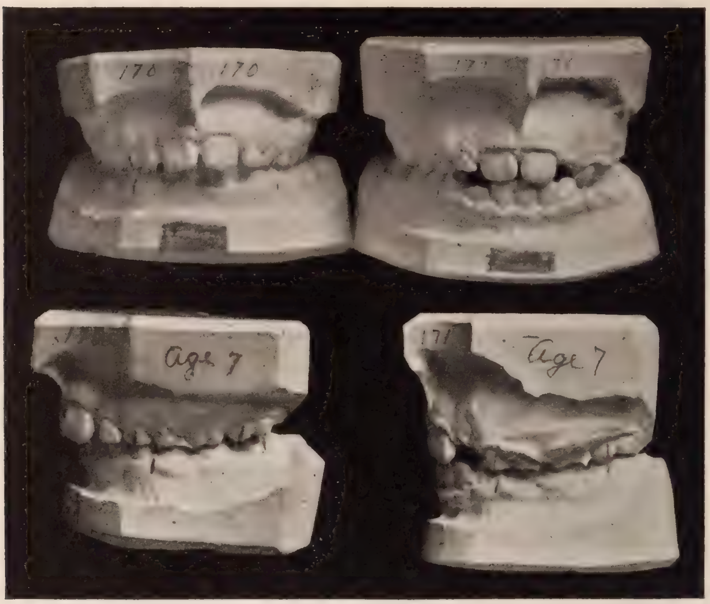

Fig. 14.

Time occupied in treatment, six weeks. Had the treatment been delayed till even twelve years of age, it would have been much more difficult on account of the locking of the long cusps of the bicuspids, and the second molars as additional teeth to be moved.

Case VI. Age 9. Fig. 15. Distal occlusion of entire arch and retrusion of lower jaw. Also protrusion and supra-occlusion of upper incisors, causing excessive overbite. Any delay at all would have intensified the deformities in both the teeth and the face, and delay till the twelfth year must have resulted in hideous deformity, requiring long treatment and imperfect restoration of normal conditions. As the case was taken at this favorable time, remarkably gratifying results were obtained in but nine weeks. The models and the profile photograph show the immediate results, and the full-face photograph shows a still greater improvement three or four months later.

Prevention of deformity is a much more valuable service to humanity than is even its successful correction, but that is not always possible, and the nearest approach to it is early treatment to prevent additional deformities.

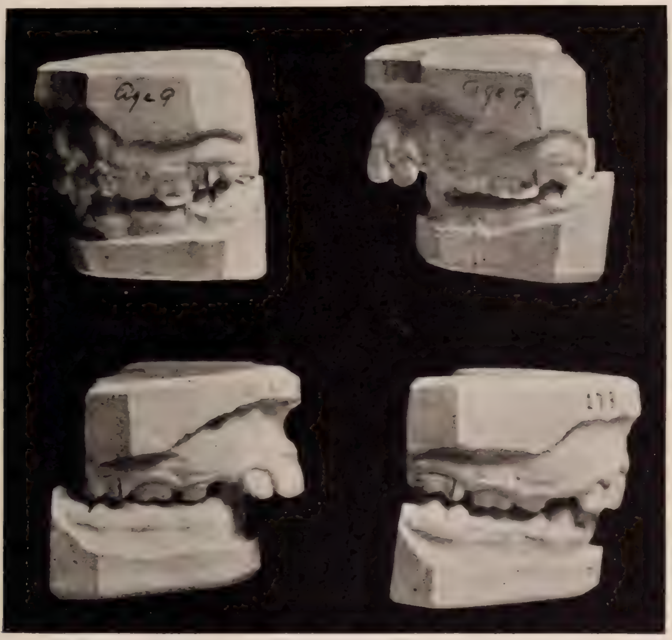

FIG. 15.

THE GOLD INLAY.*

BY W. N. MURRAY, MINNEAPOLIS, MINN.

In presenting this subject, I wish it distinctly understood that whatever merit I may claim for the gold inlay, I do not wish in any way to detract from the value of any of the various filling materials now in use, or to offer this method of saving teeth as something that can be used indiscriminately, or that will supplant any of the valuable materials or methods now in use.

That there is a place for the gold inlay, and that the investigation of this method as a tooth-saver has long and universally been neglected, I am thoroughly convinced; in fact, I do not think that the value of the gold inlay has ever been fully comprehended by the profession at large. I believe that none of our textbooks, except Dr. C. N. Johnson's "Practice and Principles of Filling Teeth," contain anything upon this subject, and Dr. Johnson's description of the inlay and its technic is somewhat limited. I find occasionally a man who is inserting inlays of this kind who is bubbling over with enthusiasm, but who seems to have closed himself up in his shell as regards his fellow practitioners in enlightening them upon this subject.

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* Read before the Minnesota State Dental Association.

I have stated that I do not wish to detract from the value of any of the present filling materials now in use, neither do I, but I say most emphatically that I wish to enter a vigorous protest against the wholesale sacrifice and indiscriminate cutting down of valuable teeth and trying to save them with badly fitting crowns, thereby inviting disease and the loss of these valuable dental organs sooner than they otherwise would, had other methods been resorted to. Where can the gold inlay be used to advantage, or where do we feel with our experience the usual filling materials are inadequate? With the results that I have obtained with this method, I shall answer this question.

First.—I shall never fill with gold again a devitalized molar or bicuspid, because I know that the gold inlay is far more permanent, that it is far less irritating to the tooth, far less enervating to the patient, and last, but not least, that the frail walls that from the force of circumstances exist in nearly all of these cases can be better protected with the gold inlay than with any gold filling that can be placed in them.

Second.—In all upper and lower, second molars, distal cavities, I shall place the gold inlay, because I think that the same relative amount of skill that must necessarily be used to insert gold fillings in these cases, were it expended upon the inlay, would be productive of better results and be less enervating to the operator and the patient.

Third.—In children's teeth, where parents demand gold, we are, to use a slang phrase, up against it. The ease and permanency with which these cases can be handled has astonished, pleased and been a source of satisfaction, both to the parent and myself.

Fourth.—There are aged people who come under our care with teeth much loosened by the ravages of time and disease, and it is a peculiar fact that in our experience we find that most of these cases personally demand the highest class of dentistry. The longer they keep their teeth the stronger they seem to become attached to them. It would be almost a suicidal policy to attempt to mallet gold fillings in this class of teeth. The inlay can be used in these cases and proves a boon both to the operator and the patient.

It was not my intention in this paper to go into the technic of this branch of dentistry; however, I find that so little is known in regard to the cavity preparation, the burnishing of the matrix, proper instrumentation, investment, soldering, finishing, etc., that I shall give you the result of my experience in this work.

All proximal cavities should be prepared in such a manner as to admit of the removal of the matrix from the occlusial surface only. In all these cases the matrix should be removed in a direction to correspond with the stress exerted upon the same. In all proximal cavities wherever the tooth structure will admit of it, a dovetailed step should be resorted to, and in cases where the decay is such as not to admit of a step, a beveling of the enamel walls beyond the cusps of the tooth operated upon should be resorted to so as to prevent any possibility of the matrix moving toward the proximal surface. In all cases the cavity preparation should be carried into angles with straight lines therefrom toward the occlusial. In the burnishing of the matrix, would say that this is largely a matter of personal equation and much depends upon the skill and patience of the operator. I have found Dr. W. T. Reeves' set of burnishers admirably adapted to this work.

For the matrix I use about No. 40 doubly refined rolled gold, and to better enable me to get the proper sized piece of gold for matrix, I usually take an impression of the cavity in wax. After burnishing the matrix as near to perfection as possible, crowd the wax impression that you have taken of the cavity into the matrix in the cavity and trim the wax in the matrix the shape that you desire your inlay to assume. Gently remove the matrix containing the wax from the cavity, and to properly get proximal space and point of contact, place a piece of pure plate around the wax filling, corresponding to the proximal surface, and gently bring the same with warm pliers up to the margins of your matrix. Before investing, coat the outside of matrix with rouge dissolved in alcohol, to prevent any possibility of any solder flowing upon this side of the matrix.

The best investment for this work I find to be the S. S. W. sump.

In the flowing of the solder, great care should be taken not to melt any portion of the matrix. A very wise precaution is to fix solder by burning upon the surface of same wet ground borax in a Bunsen flame. In finishing the inlay out of the cavity, do not finish directly up to the line indicated by the matrix lapping over the margins of the cavity, but leave a slight feather edge all around the margins and put the final finish after the inlay has been set in the cavity.

It is quite a difficult matter to describe an operation of this kind upon paper, and if there are any points that I have not made clear I will be glad to have you bring them out in the discussion.

PORCELAIN INLAYS AS A FILLING OF CAVITIES IN THE INCISORS OF A BOY TEN YEARS OLD.*

By E. H. Allen, D. D. S., Freeport, Ill.

It would have been better had I given a different title to this paper. You may, however, understand what I am aiming at if I say I shall not discuss the "modus operandi" of the porcelain inlay, but just one feature of it as a cavity stopping. This will take but a short time.

To lead up to the point, I may say that the question as to how the incisors of children at or about ten years old may be best treated to arrest caries has not, in my opinion, been satisfactorily answered.

Gold has not taken first place because of its incompatibility with tooth structure at this early age, its great conductivity of thermal changes precluding its use in this class of cases.

Tin has many of the desirable qualities of a filling. It is quite compatible with tooth structure, but it makes an unsightly filling and has, of late years at least, not had many advocates for the class of cavities before mentioned. The cements are excellent filling materials in most respects, both in appearance and compatibility, but, as you all know, they are unreliable because of their solubility in the fluids of the mouth, requiring closer attention than most dentists are permitted to bestow upon their young patients. I have seen so much harm done by the neglect of cement fillings that I seriously question the wisdom of using it as a filling material for these cases. However, this much can be said, that as long as the cement lasts it is nearly the ideal filling.

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* Read before the Northern Illinois Dental Society, October, 1903.

Gutta percha has not taken a very prominent place among the list of filling materials and particularly in the cavities of the centrals. Gutta percha is, as we all know, compatible as far as conductivity of thermal changes are concerned, but does not, in my experience, meet the requirements desired.

When this case which I have in mind first came to me, I concluded at once that gold was contra-indicated. The filling for this case must be a non-conductor. The porcelain inlay suggested itself to me as being a most excellent one. I also reasoned that a fairly good inlay would probably outlast a cement filling, thereupon I began the work. This is in a certain sense an experimental case, but I am quite hopeful that time may prove that I did not err in my judgment. Therefore, I ask you, did I do right or wrong?

PRESIDENT'S ADDRESS.*

By E. J. Perry, D. D. S., Chicago, Ill.

Speaking of this Society, the year past has been characterized by no particular work of an original nature. Most of the papers of our Society have been a restatement of ideas or facts with small additions or subtractions. The paper of Dr. Harlan, while not new, was a reaffirmation in the main of facts original with himself in the first instance, and perhaps constitutes the best work of the year. The idea of pulp digestion was insisted upon as a reliable system of practice, and his conclusions were based upon sound clinical experience. We would do well to read over this paper several times, as the father of this Society seldom speaks without sound premises.

Dr. Royce's paper on antiseptic root canal filling was a logical contention by a reliable, practical man and a careful observer. I have verified his conclusions in this and in many other matters.

Dr. Kester's paper on "The Evolution in Dental Practice" was written in his own strong and convincing way, and while there was nothing in it for us to take into our work, it was a strengthener and showed a depth of thought not reached but by a few. He began by quoting from Carlyle: "The beginning contains within it the end, and all that pertains thereto." The sentiment and the whole paper savored a little of fatalism, perhaps, or that all things happen by inevitable necessity. After touching upon a few accomplished facts, and the manner of their growth, such conclusions were easily reached, as we find in his closing words, namely, that the rational treatment of caries of the teeth *will* be made through the general system, and serum-therapy be an established fact. God bless Brother Kester. He was away above the earth, and to our mortal and practical eye a mere speck in the sky above.

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* Read before the Odontological Society of Chicago, November, 1903.

Dr. Wassall's paper on "Oral Hygiene" resulted in the appointment of a committee for the purpose of ascertaining from various schools and colleges how much stress was laid upon instruction on this subject. This committee has only made a partial report, been granted more time, and it is hoped that this Society, through this committee, may be able to produce a reliable and authentic statement upon oral hygiene which will be for the popular eye.

Dr. Ames, in May, on "Sterilization by Silver and Silver Salts," was highly interesting and his contentions were verified in the discussion which followed. Something of a practical nature is looked for from Dr. Ames as the result of experiments he is making on the lines of his paper.

March I was not present, being in the midst of a scrap with typhoid fever germs, in which for a time they had me going. Dr. Reid had the boards; his subject was "Prevention for Extension." As the paper was lost, I did not have a chance to read it. It was by Reid, and that settles it. All the nonsense boiled out and common sense left. It could not have been otherwise.

Dr. Case held the floor in April, drawing our attention to the correction and retention of abnormal spaces between the superior central incisors. The president has not seen this paper, being absent on account of sickness.

The year in general has chronicled the deaths of several men known wherever scientific dentistry is known. Our own dear Dr. Barrett, often a guest of this Society, whose mind was like a beautiful casket filled with jewels of wit and wisdom, whose heart was like a lion, and whose soul lifted his whole professional personality away above the bulk of men, has gone to the Great Unknown. The last month also closed the life of Dr. Jonathan Taft. Oh, what a personal and professional heritage he has left us. To know him was to revere him. He was great in his greatness, yet greater in his goodness. Others of lesser mark have also gone, many of them dear to us by personal affinities, and the responsibility of carrying on their work rests with us, and so the great world goes on.

I will forbear to comment on the great congress to be held at St. Louis in August of next year. This will be a history-making event, and some little history has already been made. I pass it for my successors.

In education the most important change is the college term of four years as a prerequisite for graduation. This seems to be a history-making epoch. The gradual raising of the standard to its present high place will no doubt bear fruit to the good of society and fix our place with the great professions. It is a matter of great pride to me to note the very high standard of our schools, and I notice with much satisfaction the acknowledgment of medical men that our schools fit men better to become dentists than the medical schools fit men to become practitioners of medicine. I am told that the faculties' association and examiners' association are getting nearer and nearer together each year, that the State laws are getting more uniform and a good promise of the future is a proper unification of our dental laws. We had bad luck with our new law in this State, which, after passing the House without dissent, and but one dissenting vote in the Senate, our short-sighted governor, not to put it harder, saw fit to veto it, and that after the adjournment of the Legislature; thus we have to wait two years, during which time let us see that a wiser man has that power.

Perhaps the most peculiar and to me irritating professional incident of the year was the passage of a resolution by the Chicago Dental Society, proposed by the Chicago Medical Society, namely, that dentistry is a specialty of medicine. This may be and likely is a history-making event, but aside from endless discussion can have but little practical effect upon the body of the profession. We are what we are, and a resolution passed by a majority of half a dozen will scarcely change us into something else. The Chicago Medical Society, through its president, Dr. Evans, stated as a reason for its passage that for the larger purposes of the healing art toward humanity in its development, both physical and moral, in health and disease, the medical profession desires to present a solid front, a federation of all the specialties of the great healing art, for the purpose of securing all benefits of law for ethical and other reasons. In all this the whole professional impulse of the dental world beats in harmony with the Chicago Medical Society, but we can not see why as a necessary prerequisite to our formal acceptance of this sentiment that we should resolve ourselves into a specialty of medicine. While we limit our work to the dental organs, and are doubtless dental physicians and surgeons, still we are so unlike any of the specialties of medicine in education and literature and law, we certainly stand alone as an independent profession, willing to meet the Chicago Medical Society in all matters ethical or matters pertaining to the public morals, public health, physical growth, or any and all the normal and high ends given as a reason for the adoption of the resolutions. We may now expect to see that later on the Chicago Medical Society will take in the Chicago Dental Society, which will become the Stomatological Section, etc.

Perhaps the most discussed practical subject the past year has been inlays. The year has seen quite a change in the dental mind as to the real place in practice the inlay, porcelain or gold should occupy. Some of our best men took extreme grounds, using the inlay to the exclusion of the gold foil filling, limiting its use to the ability of the operator. Some would even relegate their pluggers to the background. Others, where porcelain has failed on the masticating surfaces, have found security in the gold inlay. The real truth is coming now, and the pendulum is nearing the center, returning from each extreme with the crystallized truth, and the dental practitioner can safely grasp it. Inlay cavity preparation has taught us how to better prepare cavities for gold or amalgam work; not that they are just the same, but that we can cut wider, cut more, open better. The gem stone run in water is nearly painless, and for efficiency in large cavities the steel burr is not comparable to it. The inlay principle of retention of filling in cavities has come to mean a combination of adhesion and locking. The filling on the masticating surface of the tooth must have some other force to retain it than mere adhesion. It must be wedged or locked there. Too much can not be said in favor of the inlay in its freedom from the danger of marginal injury. I can see the large amalgam filling disappearing, the gold inlay taking its place. I can also see the large (now, mind you, large) gold filling disappearing, with its attendant sufferings and labor, and the gold inlay coming to the relief of both patient and operator. I can see a rational application of the inlay to dental practice, and a great good to us all of the advent of this filling. I look for a colorless cement as strong and insoluble as glass. We may see its birth in this very Society. I have in molars where the inlay is very large set with gutta percha. I can show a number of these of two years' standing doing perfect service.

Perhaps the most noted meetings of the year were the Odontographic Clinic and the great meeting in Madrid, Spain.

The Odontographic Clinic eclipsed all previous meetings in the history of dental society work in the point of attendance, being the largest by far of any dental gathering ever held, and has no parallel up to date in this regard, or in the value of its papers and discussions. The banquet at the conclusion was also a record, and set a mark which will be hard to reach even by a world's congress.

The discussion of the year's work in this Society; the work of the year in the profession at large; the mention of any dental event of the year, are now in order. It is your privilege at this meeting to discuss anything of dental interest. I wish to thank this Society most fraternally for its courtesy to me as its nominal head, for your patience with my clumsy and inefficient ways, promising in return for this my best effort and most loyal support of the Society. A man of small talent can be of great use to any society by constancy in attendance, by good fellowship, by standing loyally by the individual members of the Society in every way and place; in short, by doing what he really can do. This now is my promise.

PRESIDENT'S ADDRESS.*

By L. J. Mitchell, D. D. S., London, England.

Members of the American Dental Society of Europe:

Gentlemen—In opening the regular session of the thirty-first meeting of this Society, I desire to thank you with all sincerity for the honor you have conferred upon me by asking me to preside over your deliberations, and you, as my friends, I know will look with a kindly feeling upon the many shortcomings on my part, which I fear are in store for you ere this meeting is finished.

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* Read before the American Dental Society of Europe, Hamburg, Germany, April, 1904.

It is with the deepest regret we have at this time to record the loss of two of our most revered honorary members, men whose names are a household word in our profession, and to whom neither time nor distance was a barrier to their attendance upon gatherings of this character.

I refer to Drs. W. C. Barrett and Jonathan Taft, and it is gratifying to know that during the last hours of Dr. Barrett's illness it was the privilege of some of our members to be a source of comfort and assistance to his life's companion during these trying hours in a foreign land.

At a suitable time I shall ask your permission to introduce a motion to appoint a committee to draft resolutions befitting the demise of these worthy men.

Seeing with us the old familiar faces and the ever increasing number of new ones shows in the most practical way that while in our practice we may be separated by distance, we are still together in our thoughts, and have the common interests of our patients and profession at heart.

Our list of active members has not been diminished by the more stringent and exacting requirements now insisted upon for admission to practice in the various countries of Europe, but, on the contrary, we today are numerically stronger than at any period in the history of this Society, proving that the standard of education and efficiency has advanced, and that the judgment and confidence of the elite clientele of the different countries whose dental representatives are with us today has not been misplaced.

These are people of broad thought and keen foresight and realize to the full that the members are not the only ones who benefit by the interest taken in and attendance upon dental meetings, but that they are the direct recipients of the benefits to be derived therefrom. The undercurrent of thought and the atmosphere of surroundings such as these back up the themes of the papers, clinics and discussions in a way that is permanent and useful, and where the program has not been too replete with good things, it is a change at least, if not in all cases a decided respite from work, and in this regard I would in the future counsel the wisdom of executive committees in acceding too much to the amalgamation of our meetings with those of other societies, no matter how attractive the plans may be, and thus having to prepare a program that means a rush and a hurry to complete, even with scant courtesy to those engaged, and seriously detracting from the benefit and comfort of those in attendance, as it is now almost an axiom that the larger the meetings, except those confined to clinics only, the less actual work is accomplished at the time, and though much is in this way added to the literature of our profession, it lacks the strong personal influence that is brought to bear when one hears a paper read and defended by its author instead of being read by title, if even this is accomplished, and this is why I wish to emphasize the necessity of allotting sufficient time to our essayists, that their papers may receive the consideration that their merits demand. This you will say is in direct opposition to what I have advocated and practiced heretofore—and I must admit the soft impeachment—but this change is not brought about by the desire for the repose that old age forces upon me, as some of my friends have said, but by the experience born of the unwise amalgamation of too many meetings.

I know at this period of the president's address it is customary to either give a complete history of our profession to this hour or dilate upon its great benefits to men, and I may say women, too, or to give copious extracts from the pens of learned men to back up any theme which may be chosen by your presiding officer; but if you will allow me, I prefer to wander from these most excellent precedents and to simply offer a suggestion which in practice has proved useful, and which I believe makes our work easier for us and pleasanter for our patients.

We are constantly being reminded of the duties we owe to our profession and our patients, and these have been presented by others in a more able manner than it would be possible for me to do, and with all the weight and importance that attaches to them, and these facts no one in active practice desires to evade or contest.

It is also clear that by regular attendance upon society meetings and keeping abreast with the literature of our profession and the latest modes of conservative manipulation, our patients receive our best efforts, but this means concentration, tension and nervous strain, and unless the physical economy is built up to withstand this our best intentions fail to do justice to our ability, and it is only by keeping physically fit and well we can do our best for our patients and our profession and be able to reap some of the enjoyment we are rightly entitled to after an arduous day's operating. How many of us do this, or are able to?

Ours is not a calling that builds one up, as can be seen by many instances wherein some of our most admired confreres are too physically exhausted to take up and pursue with pleasure any active outdoor recreation when their appointments for the day are finished, or even when their regular holiday is at hand.

Let us all cultivate a greater desire for outdoor recreation which will carry us away from our surgeries and into the fresh air. Hunting, shooting, motoring. fishing, cycling, or even golf conduces to this end and the necessity for exercise is demonstrated by the way all kinds of physical culture has been taken up by the rising generation in America, where at the present time the average man there at forty is only strong enough to sign checks for the family and look over the morning papers in the hopes of finding another liver cure, or a new digestive. instead of being able to enjoy the fruits of his labors and take his pleasure by the way, as they do, for instance, in England. You say you can not leave your practice and patients to engage in such pastimes; probably not, but both will leave you very soon when you are physically unable to attend to them properly.

There are obligations which patients owe to us, besides paying our fees, and while we are doing all we can to make them physically comfortable they should be the last to do anything that should not conduce to our own well being, and when our case is presented to them in this light we have yet to hear patients complain of our absence. For the past seven years we in our practice have concluded our professional appointments on Friday and taken the entire day of Saturday off, so we have had a good opportunity to judge of the practical working of the plan now suggested.

Longer hours, if you wish, during the remaining five days quite make up for the supposed loss of time and with two clear days each week at one's disposal, you have a rest and change that makes the work easier, and the days seem shorter.

This, coupled with the fact that your financial balance is as large and that you have in addition your outings and an increased desire for them as an invaluable asset, will, I trust, prompt you to try it and induce others to do the same, and to make us as exacting of our patients for our comfort and enjoyment as they are of us for their own.

Take care of your health and your practice will take care of itself. Most of us, if not all, owe our present position to the kindly consideration bestowed upon patients, which has enabled operations to be performed that, with harsh treatment, and only the end in view, would not have been possible; this, in addition to the exertion of the work itself, is the factor that renders recuperation an absolute necessity if we are to follow our calling from day to day and to do justice to our cases and ourselves for any length of time. The fact of our improved methods of practice, based upon scientific research, and the great additions to our pharmacopeia, and our full armamentarium of instruments and appliances that are now well nigh perfect, does not lessen this strain and exertion in any perceptible degree, as the ravages of dental caries and disease require more exact manipulation and attention to detail. As we are not contented with mere preservation, but the natural and artistic side of our practice is now by no means the least important branch, no one would be safe in predicting what the next decade will evolve to change our present ideas in conducting an elective practice.

Our patients soon learn about new discoveries, both in methods and materials, and are not slow in availing themselves of anything conducive to their appearance or comfort, regardless of what this entails upon their professional attendant; largely because the difficulties are met and contended with by the operator, without introducing to the patient another miracle, he simply takes it as part of his ordinary professional routine.

That the patients have a right to demand this attention is quite within their province, and they are usually most grateful for the services bestowed, and are not slow to assist their professional advisor in every way when it is pointed out that very largely upon his physical fitness depends the class of operations that are performed, as those of the highest grade are not undertaken unless one feels up to the strain that this nicety of manipulation demands.

I thank you, gentlemen, for your kindly forbearance in listening to this suggestion and trust it may be worth your time to seriously consider at least the underlying principles herein laid down.

PRACTICAL THERAPEUTICS.

THE REMOVAL OF PULPS FROM THE TEETH AND THE SUBSEQUENT TREATMENT.

By J. P. Buckley, Ph. G., D. D. S., Chicago.

In a previous article I called attention to the danger of producing pulpitis in our effort to completely obtund sensitive dentine; and intimated that, in my judgment, it was much better and safer practice, in many cases, to *remove* the pulp and properly treat and fill the canals, than to *leave* this susceptible tissue to the irritating influences of many obtunding agents, ptomaines and metallic fillings. However, I do not desire to be understood as favoring the indiscriminate destruction of the pulp tissue; but I do favor the exercise of good, sound judgment, based upon actual practice.

It is the plain duty of every dentist to do, for his patient, that which he believes, from his past experience, to be the best. There is no conscientious dental practitioner who is not daily confronted by conditions of the dental pulp wherein it is difficult to decide which would be the better course to pursue—to try and preserve, or to destroy and remove, this tissue.

A logical decision can only be reached by a thorough understanding of the pathology of the pulp tissue; especially is it essential to have a knowledge of the various phenomena of inflammation. It is not my object here to discuss dental pathology; but the correct application of drugs and medicines to the treatment of any diseased dental condition, presupposes an intimate knowledge of this science. In these doubtful cases, then, the pulp tissue has usually been subjected to continued irritation. It may have been slight, only amounting to stimulation—causing thereby a recession of the tissue and the building of secondary dentine; perhaps, in some instances, the formation of pulp nodules. This irritation may have been such, however, as to produce all of the various stages of inflammation, which, in the pulp tissue, differs little from that of any other tissue of the body. But the disposition of the inflammatory products differ greatly. The pulp tissue, like the tissue of the brain, contains no lymphatics; therefore, when *true* inflammation has existed or does exist in this tissue, the pulp should be removed. In adult patients, I do not think it good practice to try to save the pulp where the irritation has caused the tooth to ache for any great length of time.

There are few conditions where we are justified in capping the pulp. In third molars which we desire to save and on which it is difficult to adjust the dam, remove the pulp and fill the canals, we would be justified, in some cases, in attempting to preserve the pulp by this means. It is our duty, in young patients, where the roots of the teeth have not been fully developed, to cap the pulp: but, in every case, the operation and the object for so doing should be explained, and the patient instructed to return at once in case of subsequent trouble.

There are at least three important factors to be considered in the removal of pulps from teeth and the subsequent treatment, viz.: 1st, *maintain asepsis* in the removal of the tissue; 2d, *preserve the color* of the tooth, and 3d, *thoroughly fill* the canals.

Pressure Anaesthesia.—The shortest, most painless and, in most cases, best method of removing pulps from teeth, is to anesthetize the tissue by means of a solution of cocaine which is forced into the tissue under pressure. The rubber dam should *always* be adjusted, that asepsis may be easily maintained. The crowns of the teeth included in the dam should be thoroughly disinfected as well as the cavity through which the pulp is to be anesthetized. The thumb and forefinger of the left hand, with which cotton is wrapped around the broach, should be disinfected as should the broach and every instrument we expect to use. A 20 per cent solution of formaldehyde to which is added a small quantity of borax, a 10 per cent solution of chinosol, or a 1-200 solution of sublamine can be used for sterilizing, provided the instruments are *clean* and when dipped into the solution, removed at once and dried on an antiseptic doiley or small pieces of gauze, which should always be used for this purpose in the treatment of any condition where it is desirable to keep the instruments surgically clean. In the use of the formaldehyde solution care must be taken not to get the solution into the canal and beyond the apex, as it is one of the most irritating agents used in dental practice. Neither the sublamine nor the chinosel solutions are irritating; but both act readily upon steel instruments, hence the necessity of having the latter clean, and when dipped into the solution removed at once and dried. Care must also be taken not to get the chinosol solution into the cavity or canal, for while it is non-irritating and a good disinfectant, it will badly discolor the tooth.

The cavity should be dehydrated with absolute alcohol and as much of the decay removed as can be done without producing pain. A small quantity of *powdered* crystals of cocaine hydrochlorate should be placed on one end of a clean glass or porcelain slab, and a few drops of some *aqueous antiseptic solution* on the other end. For this liquid I use freshly prepared peppermint water to which is added two minims of carbolic acid to the ounce. A small pledget of cotton is dipped into the liquid, passed through the flame, and then placed to the crystals which, if powdered, dissolves readily, making a saturated solution. This is now placed into the cavity, and with a piece of unvulcanized red rubber, softened by heat, and a ball burnisher or blunt instrument which practically fills the cavity, pressure is made on the cotton, forcing the solution through the tubuli into the pulp tissue. In favorable cavities, where the solution can be confined under the pressure, one or two applications, no matter how far from the pulp the cavity may be, should be sufficient to permit a painless exposure, when another application will completely anesthetize the tissue. In unfavorable cavities, it is necessary oftentimes to restore a missing wall with cement or gutta percha, or use one of the instruments that are on the market for confining the solution. Many failures are caused by not confining the solution sufficiently under the pressure to force it into the dentine and pulp tissue, or by releasing the pressure when the patient flinches. Steady, but firm, pressure should be made until the patient feels pain, when the pressure should be stopped, for a few seconds, but never released. This should be repeated until the rubber can be kneaded into the cavity without producing pain. The pulp being anesthetized, we should open into the pulp chamber with a large round bur, exposing to view all of the canals. The proper broach should be selected and *tested* by bending, so as to be reasonably certain that it will not break in the canal. It is now sterilized and passed through the tissue as far into the canal as it will go without using much force, when it is twisted just enough to entangle the barbs, but not enough to tear the tissue, and withdrawn. We have now antiseptically removed the tissue—hence attention will be directed to the subsequent treatment. Much has recently been written about the control of hemorrhage after removing pulps by this method. Some writers have advocated the universal use of haemostatic agents, such as a 1-1000 solution of adrenalin chloride, as the vehicle for dissolving the cocaine—not for the purpose of *controlling* but for *preventing* hemorrhage. In this connection, let us not forget the fact that the large percentage of the pulps, which we are called upon to remove, are those that have passed through the various stages of inflammation; and let us remember also that, in most cases, this disturbance of the pulp tissue has caused at least a hyperæmic condition of the tissue surrounding the apical end of these roots. With these facts in mind, then, it should *not* be our effort to prevent hemorrhage, neither should we be hasty in checking it after removing pulps by this or any other method; for the escape of blood from the hyperæmic tissue about the end of the roots is one of the best means of readjusting this tissue to its normal condition, and it also lessens the liability of producing peridental disturbances by the subsequent filling of the root canals. Solution of adrenalin chloride is one of our best remedial agents; but I fear it, like many other valuable drug preparations, is being used where it is uncalled for and unnecessary. If let alone for a few seconds, nature usually checks the hemorrhage, when the blood can be carefully but thoroughly removed from the cavity and canals with absolute alcohol, and then an antiseptic and anodyne dressing of oil of cloves, carbolic acid, etc.—being careful to select drugs which will not discolor the tooth structure, should be hermetically sealed into the canals and the patient dismissed until a subsequent sitting. It is never safe practice to fill the canals at the same sitting that the pulp was removed by pressure anesthesia, for the reason that the tissue at the apical end of the roots is usually anesthetized, making it possible to force the root filling beyond the apex without producing pain until the anesthesia has passed away. The peridental membrane has been irritated and it needs an anodyne treatment, rather than the presence of some foreign material or drug which only increases the irritation, thereby causing severe apical pericementitis.

I desire to emphasize the importance of *removing* the blood from the cavity and canals by using absolute alcohol. Never use peroxide of hydrogen thinking by this means you remove the blood, and then wonder why your tooth darkens after the filling is inserted. Peroxide of hydrogen does not remove the blood—it simply *decom-*

poses it within the canals, oxidizing the iron found in the hæmoglobin, which oxide is forced, by the pressure of the gases generated in the decomposition, into the tubuli, causing the dentine to subsequently discolor. The color of the teeth does not depend upon the life and vitality of the pulp tissue—it depends upon the array of colors in the dentine which are reflected through the nearly colorless and transparent enamel. Therefore, in my judgment, the belief that teeth discolor simply bcause the pulps have been removed is erroneous. That they do often discolor after removing the pulp tissue is the experience of every dentist. But the discoloration can be traced to failure in *removing* the blood, or to carelessness in selecting the agents used in the treatment, and the materials in the filling of the canals after the tissue has been removed.

The removal of pulps by devitalization will be the subject of our next article.

DISEASED GUMS AND THEIR CLOSE RELATION TO SUCCESSFUL OPERATIVE DENTISTRY.

By H. W. Davenport, D. D. S., Chicago, Ill.

The diseased condition of the gums of our patients today is bringing forth the question of the importance of the treatment of this condition more than ever before. The practitioner who confines himself to the narrow old routine of common every-day work in a few more years will be numbered among those of the forgotten, and only those of progressive ideas will be the ones to reap the golden harvest and lend honor to the profession.

The idea of only a few making a specialty of diseased gums, when so many patients are affected and can not afford to pay specialists' fees, compels the more progressive ones among us to take up this branch with our every-day practice, and that is as it should be. I can not see how a practitioner can conscientiously fill, crown and bridge his patient's teeth and pay no attention to the congested, inflamed or pus-producing conditions of the mouth, knowing all the time that his work will not prove satisfactory, because that patient must lose those teeth soon from the fact that the gums are diseased, undermining and loosening the teeth until they eventually fall out or have to be extracted. Not this alone, but we have allowed our patient to become exposed to general infection. The blood, instead of passing health throughout the body, distributes deadly germs of disease, the patient thereby falling victim to auto-toxicosis.

With this introduction it may be inferred that this paper is dealing with the question of pyorrhea. Such is not the case. It is by far the most important that we should treat the primary causes, as they exceed greatly the cases of true pyorrhea.

How many of our patients have true pyorrhea? A few.

How many are affected with soft, spongy, bleeding, congested, inflamed, swollen gums, with hardly any presence of pus? Two-thirds of them, and it is our duty, as dentists, to treat these conditions if in our power, and, if we have no remedy, let us work until we get one.

Thousands of teeth are lost every year from lack of treatment. You ask the average dentist if he treats pyorrhea; he will answer that there is no cure for it. That is true, as the average individual interprets the word "cure," and yet we should be able to overcome the pus conditions and, by yearly treatments, save those teeth for many years.

I have had many say, "There is no profit in treating diseased gums." As for me, it is the most profitable branch of my practice, and while we may not get exorbitant fees, a reasonable fee is better than nothing, and we have done a beneficial duty to our patient and increased our own professional reputation.

The word "cure" seems to be one that causes untold annoyance in the profession when applied to the treatment of diseased gums, and yet when we fill a tooth we sometimes find that next year the filling has to be reinserted. We do not hesitate, but refill and charge for it, explaining to the patient that nature has undermined the work we have done, that the teeth will need yearly attention, and, of course, we shall have to charge for it. Every winter I am compelled to call in my physician, as I catch a severe cold, and my constitution does not seem to throw it off. After I have taken the medicine prescribed and recover, I find that all that was needed was something to assist nature to throw off that cold, and I am cured.

Now we come to the word "cure" as applied to the treatment of diseased gums. To cure is to put into a normal condition that which has been abnormal. How long it will stay normal is another question, and depends on the systemic conditions and primary causes which first caused the abnormal condition. If a patient comes to you with diseased gums, that patient has an abnormal condition. You treat that condition and produce a normal one, and you have cured your patient, but how soon that abnormal condition will again occur depends to a great extent on the conditions which first produced it. We should treat the gums the moment they become infected, even if it be many times, just the same as we would refill a tooth a number of times, or the same as physicians treat their patients when they are sick. If by treating the diseased condition of the gums of our patient yearly, or every six months, we can save their teeth, we do them an everlasting favor, one they will never forget.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held January 5, 1904, with the President, Dr. Don M. Gallie, in the chair.

Dr. Herman Prinz, of St. Louis, Mo., read a paper (by invitation) on "A Few Factors Concerning the Action of Antiseptics."

DISCUSSION.

Dr. J. P. Buckley:

We have had the pleasure tonight of listening to a very scientific paper upon a most interesting and practical subject. I fear, however, that my discussion of this paper will necessarily be somewhat rambling, because, while the essayist sent me a copy of the paper a few days ago, requesting that I read it over and hand it to Dr. MaWhinney, I received it at the time that we had the terrible catastrophe here, and, interesting as the paper was, it was difficult for me to read or study it at that time. I found, however, in reading it over that the essayist has been so conservative and careful in his statements that had I time to study it, it would be exceedingly difficult to discuss it. I can enter into a discussion with much more energy and vigor when I realize that there are certain parts of the paper to which I must seriously object. I may not agree with everything the essayist has said in his paper, but there is nothing to which I can object very strongly.

I feel that the program committee acted wisely in selecting Dr. Prinz, from St. Louis, to discuss this subject before us for at least two reasons. The first one is, they recognized, as this paper well indicates, that he is a reader, a thinker, and a writer; and I have no doubt but what they recognize also that his geographical location was such as to place him at a decided advantage over us in this city in studying this subject. It is only fair to us here in Chicago to inform him that we find our microbes have such a great tendency to migrate and such a desire to reach St. Louis that we are unable to hold them long enough to complete any definite tests. (Laughter.)

For some time I have been trying to get settled in my own mind the distinction, if there be any, between the two terms, disinfectants and germicides. It has been the tendency of all modern writers in our textbooks and in our medical and dental journals to try and differentiate between these two terms, but it has seemed to me they have all made a dismal failure.

The essayist defines an antiseptic as being an agent that will inhibit the growth of micro-organisms. A germicide, an agent that will destroy the vitality of these germs as the word indicates. A disinfectant, an agent that will act upon the bi-product and change it chemically into some inert substance without necessarily destroying the life of the germ.

Now, if Dr. Prinz is able to take those drugs which we have been prone to divide into two classes—antiseptics and disinfectants, or antiseptics and germicides—call this one class by whatever name you will—if he can take these drugs and divide them into three distinct classes and say, here I have the ones which will inhibit the growth of micro-organisms, they are antiseptics; here I have a list, which, used according to my directions and in the proper strength solutions, will destroy the vitality of the germs, they are germicides; and here is a class of agents which, if you will follow my directions, will chemically change the bi-product without destroying the life of the organism, they are disinfectants, then I think the distinction he has drawn is correct. But, it seems to me, the distinction is finely drawn. It is one which I do not believe exists, because I do not know of any agent, in my limited experience, which will chemically change the bi-product of these germs without, at the same time, making it exceedingly unhappy for the germs, if indeed it does not destroy their life.

The essayist has referred at some length to the history of antiseptic surgery. He has called attention to the method of operating and treatment of wounds as advocated by the great English surgeon, Sir Joseph Lister, and he concludes by saying that a broader knowledge of bacteriology and a wider experience in antiseptic surgery caused the abandonment or, at least, a modification of Lister's heroic method, because they found that this strong antiseptic was so irritating to the animal cells that it lowered their vitality, and hence, as he says, retarded rather than enhanced the healing process. The essayist knows also, after having read as much history as this paper indicates, that there was another factor which caused the modification of Lister's method. Surgeons who operated under the conditions advocated by Lister did so in an atmosphere filled with the fumes of carbolic acid, if I may put it in that way, so that the drug acted upon the cells of the kidneys of the operator, not the patient, in such a way as to produce hematuria, and, if I am not misinformed, some of our early surgeons, as a result of operating under these conditions, lost their lives. This caused the modification of Lister's method. There was a principle established, however, by the use of that method, a principle which I wish could be indelibly impressed upon the minds of every practicing dentist, namely, that these strong antiseptics are so irritating to the animal cells that they lower their resistance and hence detract rather than add to the process of healing of these wounds.

The essayist also stated that to search for an ideal antiseptic is as fruitless, I believe he puts it that way, as is the search for perpetual motion, and he gives his conception of an ideal antiseptic as one that will act upon and destroy the life of the micro-organism without lowering the vitality of the animal cell. And in this connection he made a statement (I have no reason to doubt its truthfulness) that the vegetable cell is less permeable to these solutions than is the animal cell. Is that right, Doctor?

Dr. Prinz:

Yes, sir.

Dr. Buckley:

How can we ever expect to have as our ideal antiseptic a drug that will destroy a cell whose wall is less permeable, destroy the germ, and not act deleteriously upon the cell whose cell wall is more permeable? Our ideal in life ought not to be that which we know, according to social and other conditions, can never exist. Our ideal of dentistry ought not to be that which we know, no matter how hard and how long we work, can never be accomplished. So our ideal of an antiseptic ought not to be a drug which we know, as the essayist says, according to well established biological principles, can never be. The modern ideal of an antiseptic is not that which the essayist tells us, and I do not believe that the essayist thinks that such a drug would be an ideal antiseptic, because he admits that it can never be. The modern ideal of an antiseptic is an agent which will inhibit the growth of a micro-organism, which will lessen its activity, cripple it, if I may put it in that way, and one just sufficiently irritating to the animal cells to cause stimulation; this stimulation of the part calling upon nature for more blood, effusion taking place in that particular part, allowing the leucocytes to come in contact with the already crippled micro-organisms, and nature doing the disinfection. That is the modern idea of an antiseptic, and it is based on correct principles of biology. All we ought to do is to try and aid nature. In this connection I fear that I am going to tread on dangerous ground, as I am going to differ from the opinions of some of my most intimate professional friends. I believe it is here that some of the essential oils, although they were not mentioned in the paper, have been used with such great success in treating those conditions with which we as dentists are confronted. I know as well as you do that some of these micro-organisms are seemingly happy in solutions of the essential oils in test tubes; but I know, too, that if you use the same solutions in combatting the ravages of these germs, when their home is not in the test tube but among the cells of living animal tissue, you will get results. I believe that I do not underestimate the value of scientific research work in the laboratory, but I am forced to believe also that the published records of the action of certain disinfecting agents upon micro-organisms in the test tube have done as much harm as they have done good, because we forget to remember another thing which the essayist has emphasized, namely, that the conditions of the test tube are not those with which we are confronted in treating infected tissue.

In reading this paper I could not help but realize that it emphasized a field in dentistry which is sadly neglected—the field of physiochemistry, or, as the essayist called it, physical chemistry. It is a field that stands between the two great correlated sciences. No one can really say that in studying physics up to a certain line he reaches the line of demarkation, and can quit the subject of physics and begin chemistry. There is a field of common ground between these two correlated sciences. In this field we find considered phases of such subjects as light, heat and electricity. We find the ionization theory of salts as they pass into solution. So, I say, I could not help but recognize the fact that this paper emphasized a great field which is sadly neglected.

The essayist has referred to electrolyses and the ionization theory. A few years ago, when I began the study of chemistry, one of the first experiments the professor performed was to supposedly electrically decompose water. He arranged his apparatus, attached the poles to the vessel in which he had the water, but, as a class, we noticed that he picked up a bottle which contained some acid, sulphuric acid, and before he turned on the current he poured a little acid into the water. He did not tell us why he did this, but he did it seemingly incidentally, because the current acted better when the acid was added to the water. He did not tell us that it was absolutely necessary to acidulate water in order to have the water electrically decomposed. We were taught, too, at the time that a solution was simply a blending of the molecules of a solid, liquid or gas, on the one hand, throughout the molecules of some liquid, on the other. Dr. Prinz and others tell us now that many substances, at least the simple inorganic salts, dissociate when they pass into solution. We do not have simply a complete molecular blending of the molecules of the substance dissolved throughout the molecules of the liquid; but the molecules are dissociated into ions. Now, we know it is these ions under certain conditions that decompose water. We now know that when we add sulphuric acid to the water the molecules of the acid dissociate and we get the hydrogen ion and SO_4 ion. These are charged with positive and negative electricity; they are the carriers of the current, so to speak, carrying the current to the opposite poles. The hydrogen ion delivers its charge to the negative pole, and the SO_4 ion carries and delivers its charge to the positive pole, when it finds itself with its valency unsatisfied—a condition in which it can not long exist—it acts upon the molecule of water, abstracts from the molecule its hydrogen, reforming sulphuric acid, which again dissociates liberating oxygen, which passes up the positive pole; so, while we have a collection of hydrogen and oxygen in the proper proportions to form water, this is no reason for us to believe the current produces the decomposition. It is the unsatisfied SO_4 ion.

Dr. Prinz has called attention to the osmotic action of these solutions. He illustrated it by referring to the strong or hyper-isotonic solution of magnesium sulphate. I have consumed so much of your time that I will simply say this, in discussing the action of these salts, that before we can understand the action of any agent upon a micro-organism, before we can understand how a drug acts upon any issue—yes, before we can appreciate how the food we take into the system is nourishing to the cells, we must understand the field of physical chemistry which this paper emphasized.

Again, I am glad this paper has been presented to the Chicago Dental Society, because it emphasizes a field in dentistry, and one which in our dental colleges has been sadly neglected.

DR. ELGIN MAWHINNEY:

At the outset, I want to express my very great pleasure in having listened to a paper coming from one who is so learned and so well read on this subject as Dr. Prinz. I feel especially honored, as a member of the Society, to have him come here and talk to us on this subject. It is a subject I am much interested in, and to which I have given considerable attention. I had the honor of presenting to this Society just a year ago a paper on this subject, but in a little different way. The ionization theory was brought forward in a manner similar to that expressed by Dr. Prinz. You will doubtless remember that my paper was published in the May issue of THE DENTAL REVIEW.

In the paper of Dr. Prinz there is nothing I can materially differ from. Necessarily, he had to prepare a paper short enough to be read on an occasion of this kind, and for that reason some of his statements need to be read between the lines, but to one who has gone over the literature of the subject this is an excellent resumé of the subject. While to those who delve in this work there is perhaps nothing new in the paper. yet it is put in a way that should interest all of us. Those who have not interested themselves in the subject of antiseptics particularly ought to be specially instructed by it.

There is only one point concerning which I want to take a fall out of the essayist, as did Dr. Buckley, and that is with regard to the definition of the word disinfectant. Dr. Buckley has expressed my feelings in the matter, and I would add this comment to what he has said, namely, so far as we know, all infection depends upon life. There is life behind it, in it, and through it, and upon that depends its work. Wherever there is life in infective material it will infect, barring enzymes, about which we know very little. Enzymes are peculiarly acting things. I have been studying them lately. They are the one chemical body that has the power of influencing other elements without changing themselves, so far as we know. They have a double action. They will act so as to break down and act so as to build up, and it is difficult to say much about them. If we are going to have a disinfectant, we have got to have a germicide, so far as disinfection of material is concerned. A disinfectant is an agent which will destroy the germ or germs on which the infection depends. Practically, I think, Dr. Buckley is about right. We can theorize about these things as much as we please. We can dilute agents and inhibit growth; used in stronger solutions, they are germicides to some extent.

I am very glad that the essayist brought to our attention the history of the subject of antiseptics. I do not wish to take issue with anything he has said, nor to detract anything from the honor due Dr. Lister, the great surgeon, for the impetus he gave to the study of this subject; yet the facts are that Dr. Lister was only a means of gathering certain facts which were well known and putting them together. Dr. Lister did not understand the subject of antisepsis, and did not even define it as it is understood and presented by the essayist tonight. He was told that there were minute organisms floating everywhere in the air; that these could be seen by the aid of the microscope. He was told that in pus evidences of micro-organic life were to be seen; that there was micro-organic life in the air, dust on instruments, on the fingers and skin, etc. Then he conceived the idea of doing something to prevent these organisms from contaminating the air, instruments, fingers, etc. He made some experiments along this line, and Dr. Buckley has pointed out to you the reason why Lister's method was partially abandoned. Of course, it has not been entirely abandoned. As a matter of fact, most surgeons today, I believe, operate on suppurating cases under a stream of carbolized water. Now we come back to the use of carbolic acid in these cases for the reasons suggested by Dr. Buckley.

When I studied chemistry we were taught to regard all matter as made up of atoms and molecules. Later scientists suggested and pointed out that not only do we have atoms and molecules, but we have ions—that is, peculiarly electrically charged atoms or molecules, and the Roentgen ray gives us another electron. I want to add to that one other thought which is not new, namely, that the cells of which the animal organism is made up are likewise chemotactic. They perform all their life functions by a chemical process, pure and simple. There is a definite relation (chemical) existing between these cells and certain solutions. At present we do not know much about any of the solutions except the salts, because they are the only ones that have been studied. I am confident, however, when we do study more we will find that the action of all drugs, when they act at all, is chemical. Even the destruction of tissue is a chemical process, and the whole process of metabolism and of nutrition, and all associated therewith, is chemical. I am citing this for one purpose, namely, to emphasize the fact that not only do certain salts go into solutions in test tubes, in which certain of the molecules are ionized or electrically charged; not only do they do that in solutions without the body, but that they go into such solutions within the organism. Certain salt solutions in which the tissues are normally bathed, which supports the protoplasm and all that have the power of disassociating the solutions into ionized molecules. They have the power of changing the solution, if you please, which in turn will aid in the destruction of bacterial life.

There was a time when surgeons stated that the common œdema or swelling around an inflammation area was due to the escape of serous exudates from the blood stream, brought about by the pressure or force within the blood stream, and the distended vessel wall, stretching the cells of which it is composed to make a ready way to escape. I think *that* only explains a small part of what occurs in œdema. I think really the great cause of œdema is the chemotactic property of the cells that are within the tissue. It is the chemotactic property within the cell itself that attracts thereto the liquids of the blood, and that serves to illustrate a point I am trying to make, that until we understand the chemistry of the problem, the chemistry of the proteid molecule, we shall never be able to understand clearly the subject of antisepsis. We have reached a point now in biological chemistry where we have to stop from a study of the agent, to a study of the things to be acted upon. The great need at the present time is a study of the healing process, of nutrition, from a chemical standpoint, the process of animal cell life, and of vegetable cell life. Osmotic action has been alluded to in the paper nicely and referred to by Dr. Buckley. It is a most interesting study. It serves to demonstrate to me at least that it is possible to get an antiseptic that will not be destructive to animal cell life. I believe that Dr. Prinz is not exactly correct when he states that, according to all known laws of biology, such a thing is an impossibility. I believe there is a difference chemically between vegetable and animal cells, a difference in the liquids of which they are composed to a large extent. I believe investigators are pointing out that fact at the present time. A great amount of work has been done along that line in this country, and we do not need to go to Germany to hunt for all the work that is being done in this direction, although German scientists lead in this work. Professor Loeb, formerly of the University of Chicago, but now of San Francisco, has made investigations along that line, and there are some new thoughts just coming out which will aid us greatly. If we take certain micro-organisms and place them in normal salt solution, we will find in a little while they will swell and burst. They take from that solution so much that they burst from oversaturation. I believe there are other chemical agents which will act similarly on the vegetable cell and not so much on the animal cell.

There is another point I wanted to emphasize, and that was in connection with the cells of the tissue. You know it does not matter much, so far as results are concerned, whether you chemically destroy bacteria or micro-organisms, whatever you may call them, or whether you stimulate the normal condition of the cell to a point where it will take care of the infection. The normal tissues of the body are antiseptic. There are few germs which will live in the healthy organism. I do not know of any at the present time except the anthrax bacillus. Normally, the tissues of the body are antiseptic in themselves; they will withstand the growth and propagation of any of the germs I know of, unless it be the anthrax bacillus. If that be true, it does not matter so much in daily practice whether we spend much time in trying to destroy the vegetative forms of life, or use such agents as will stimulate cell function, and I think Dr. Buckley is right in the main in his reference to the essential oils. His statement, however, was rather too sweeping. The essential oils are poisonous to the tissues by the principle of driving from the tissues the normal moisture and preparing the way for the development of micro-organic life. Normally, the antiseptic bathing solutions of the tissues are driven out by the essential oils. That is the way they poison the tissues and make way for the entrance of micro-organisms. The essential oils are valueless in virulent forms of pus or virulent infections. In common, every-day practice they have a field for use, as has been indicated. But they are dangerous and useless under certain conditions.

There are many other things I would like to speak about, but they are not very clear in my mind. At the present time I am not prepared to add anything to the facts presented by the essayist regarding the special salts mentioned.

Dr. George Cook:

I am very much interested in this subject, and was glad to know that Dr. Prinz would be here and read a paper, although I did not know until tonight that he was going to do it.

There has been so much said, and well said, that it seems useless for me to attempt to make any further remarks that will enlighten this audience. Some five or six years ago I began to do work along this line; I was really among the pioneers of the dental profession who urged investigations and study in this direction, and there is one pleasing thing to me in connection with this matter, namely, that others have come over to my way of thinking, and I feel gratified.

The paper has dealt with the fundamental principles underlying this whole subject. The author has gone very deeply into biology and has discussed some phases of the subject on which we need more light, and what he has said leads us farther and farther into the reasons for studying the subject still more.

There seems to be a misunderstanding as to what we understand by a chemical antiseptic or a chemical disinfectant. Dr. Buckley took exception to a statement made in the paper, that we can not get an antiseptic or disinfectant that will act upon the animal cell before it does upon the vegetable cell. In all biological studies it is a well known fact that the vegetable and animal cells differ somewhat. To what extent we are not at all certain; but the idea was advanced a number of years ago by Hueppe and his co-workers in this line, that the time would come when we would be able to have a chemico-biological antiseptic, an agent that would act upon the micro-organism by the exclusion of higher organic life. It is known by investigations that the proteid molecule of the hemoglobin of the blood are different chemically from that of the proteid molecule found in the pumpkin seed, for instance, and other lower forms of vegetable life, and the subject really resolves itself into this one particular thing, and that is an agent that has an elective affinity for the vegetable proteid molecule rather than for the animal proteid molecule. These are all fine-spun theories, and they seem perhaps to many as impracticable; but the time will come when they will be just as simple to the well educated dentist as are many of the simpler subjects that are discussed daily and are taught in the dental colleges. The time is not far distant when we will have to take up the subject from a scientific standpoint, for we otherwise can not obtain anything like a reasonable knowledge of what the action of any drug is. Why are certain drugs administered for a particular action of the body? Because they have an affinity for certain cell tissues. The same principle can be applied to antiseptic solutions, for they have an affinity for certain micro-organic cells. All micro-organic cell protoplasm is not the same. It may be that there is great variation in the proteid molecule as it exists in the spores of the anthrax, as in the spores of the hay bacillus or some other micro-organism. There may be a difference, and we can not treat the subject from an empirical standpoint. It has come to us in a scientific way.

I have been very much interested in Dr. Prinz' work for several years, and I feel that he is one in the field who is certainly going to help us in a great many ways to fight the battle against empiricism in the practice of dentistry.

Dr. J. G. Reid:

When I studied dentistry there was a little chemistry being taught, but not much. This was about thirty years ogo. The old theory of equivalent chemistry was taught. Along about 1877 and 1878 they changed from the equivalent theory of chemistry to the atomic theory, and it upset the whole chemical world. Then we got down to 1900, and the atomic theory of chemistry has been largely displaced by the theory of ionization. The atomic theory was that an atom is absolute. We do not know what an atom is.

Dr. Buckley:

Yes, we do.

Dr. Reid:

You do not know anything about it. You guess at it. You divide the atom up into ions, and the ion is absolutely an atom that has been cut up into nothing. (Laughter.) I do not know that an atom exists, I do not know that an ion exists, but I do know that these divisions are very fine. This paper will set us to thinking and thinking, and after a while we will probably know a good deal more about the theory of ionization than we do at present. This paper will stimulate us to go a little further and see what is really going on. The paper has done that much good to me. I have not learned very much, but it has been comforting to me to know that there is something we can find out a little more about. We became familiar with the atomic theory. We know what it is, how it acted, what it did in the chemical world. Now we are in the era of ionization of molecules, and we will find out in the next twenty-five years what this theory is going to do for us. We are still progressing.

DR. H. A. PECK:

Dr. Cook, in taking the floor, gratified all of us by making the statement he had come to the conclusion that he had nothing of value to say or to add on the subject. And we supposed he was going to sit down then. Unlike him, I shall not proceed to entertain you with three-quarters of an hour discussion after making that statement. I simply want to say that I am very glad indeed at the privilege of having heard this paper, the same as all who have preceded me have said, and I think I voice the sentiment of all in the room when I say that we are grateful to Dr. Prinz for having read his able and scientific paper. But as Dr. Reid has so well said, it leaves me, as well as Dr. Reid and a good many others, the idea that there is still a great deal more to be found out. We have only got a nice story, we might say, and I have long since come to the conclusion that there is a great deal more yet in this field of work to be found out and learned than we have ever learned, or will find out in the rest of our lifetime. The more I study this subject, the more I realize it is almost purely theorization—plenty of theory, some fact. But there is a great deal of fact yet to be learned.

There is one statement made by the first gentleman who discussed the subject regarding the essential oils which I can not let pass by, and it was this, that probably more damage has been done by the publication of work in this special line than good. I shall have to disagree with that statement, and I know Dr. Buckley believes that it is true or he would not have said it. I will not attempt to answer it, but I will gladly commend it to such men as Drs. Miller and Black for reply. I can not understand wherein a large amount of damage has been done by the essential oils. We all readily understand and appreciate the force of the statement that experimental work in the test tube is not like work done in the mouth or under natural environments. We can not experiment under the latter conditions, so that we have to do it in another form and draw as nearly accurate conclusions as possible.

Dr. J. P. Buckley:

May I have the privilege, Mr. President, of explaining the so-called sweeping statement I made with regard to the essential oils? When I made the statement that I believed the published records of the work done in test tubes had done as much harm as good, I had in mind the young practitioners of dentistry, and especially dental students, because here they do harm. They feel and believe that because an agent will kill germs in a test tube in three minutes, under favorable conditions, it ought to be used in combatting the ravages of germs in the animal tissue. When I made that statement, as I have said, I had reference to the younger men, and especially dental students. I am still of the opinion that it does as much harm as good with that class of men, because they can not appreciate that there is a difference between the conditions in the test tube and the conditions in the mouth. With men of the experience of Dr. Peck, Dr. MaWhinney, Dr. Gilmer, and all the older practitioners, these remarks do not apply. They know the difference. I would not for a minute underestimate the value of the work of such men as Drs. Black, Miller, and others in the laboratory. Read the writings of these men and you will find their work in test tubes has been verified in the mouth. But I must say, again, that I believe the published records of the action of certain agents in test tubes do harm unless the statements are verified by animal experimentation or modified for the benefit of the younger men.

Dr. W. V. B. Ames:

The gentlemen who have discussed the paper of Dr. Prinz have overlooked what I regard as the main point of his paper. He finished with a consideration of the value of metals and metallic salts, and this particular part of the paper interested me. I am glad to have had the opportunity of hearing it, and shall be glad to have a chance to study it when it is published.

Dr. Prinz gave a list of the metals and their relative value to each other. If I remember rightly, it began with iron and ended with silver and mercury. As we all know, silver has some remarkable properties which have not been clearly understood, and I hope through the work of Dr. Prinz or those whom he has quoted there will be some way of getting at what is the real property of silver and of some other metals. I am specially interested in this work, and have been for a long time, and when Drs. MaWhinney and Cook read papers before this Society recently I asked at the time as to what was known of the action of the metals when present in contact with the tissues, and by what means they exerted some special influence? Soon after that I took it upon myself, having a paper to read before the Odontological Society, to offer some thoughts in a crude way in that paper, which was entitled "Sterilization by Silver and Silver Salts." I did not advance anything, except a sort of resumé of the literature I could get at, and a few impressions which had been made upon me by watching the action of silver and some other metals in contact with the tissues. If we had a manageable material in mercury, I have no doubt we would have a more efficacious agent than silver in certain areas. But metallic mercury, on account of its physical conditions, can not be used as can silver and some other metals. After I read my paper a member asked as to the practical application of it. The practical application is simply this: If you want to construct a saddle bridge, for instance; if you have the surface of that bridge, which is in contact with the mucous membrane, composed of pure silver, you will have that tissue in a better condition than if you constructed the bridge with any other metal against the mucous membrane. In addition to constructing a saddle bridge, if you make a drainage tube where you have amputated one root of a molar, and you want to replace that root with some material, you can not do better than use silver. It will have a better effect upon the tissues than if you used porcelain or any other material.

I merely want to say in conclusion that I am extremely interested in this subject, and I hope Dr. Prinz will give us something further along this line in closing the discussion and in the future, and I assure him that I will be interested in following up anything he may do in the future.

Dr. Prinz (closing the discussion):

I am extremely pleased with the kind reception of my paper. There are a few points necessary for me to deliberate upon. It would be somewhat hair-splitting if we wanted to define distinctly the terms antiseptics, germicides, disinfectants, etc. For those engaged in general practice it is of no particular value, but for scientific purposes it is very essential that we should know what we are talking about. We should never use a term unless we know what it means. If we do otherwise, we commit a sin in biology.

Let us take it for granted that all you men here are perfect. You have assembled in a sterile condition. I came from St. Louis, I am amongst you, and I am not sterile. You become infected, you lose your sterility, and you will throw me out. It is an antiseptic condition, because you have removed the infection without giving any further attention as to what becomes of me. You have removed me bodily; therefore you have used antiseptic means. On the other hand, you are not satisfied with merely throwing me out, but you kill me. Then you have entirely and solely destroyed infection, and for that reason you have applied a germicide. Again, supposing by this means you have removed my life, placed me in jail, or done anything to keep down my personality; you have disinfected the condition. Do you understand? That is what we mean by sterilization. The word disinfectant has a distinct meaning. You inhibit the growth of micro-organisms in cases of infection without necessarily destroying them. On the other hand, if you wish to destroy infection, you do it by germicides.

To go into details would be entirely out of the question. Dr. Ames was correct in saying that the essential point in the paper was the action of the metal salts; at the same time, I found it necessary to go somewhat into physical chemistry, and to chemistry in general.

Dr. Reid, in his remarks, attacked our theories in a very humorous way. Everything is not exact in science. Therapeutics is not exact; surgery is to some extent; we know that certain medicines bring about a certain action in diseases. We find that a certain drug will cure typical cases of malaria. It will kill the plasmodium. I refer to quinine. We know that iodide of potassium or mercury under certain conditions will cure syphilis. We know that under certain conditions the salicylates, if taken properly, will cure typical cases of acute rheumatism. But we can not talk about these things because they do not belong to this discussion. We give digitalis for heart disease; we give arsenic to improve the condition of patients suffering from anemia, likewise iron to bring oxygen to the blood and to increase hemoglobin, etc.

I have been very conservative in my statements. Since you were so kind as to invite me to read a paper before your Society, if I came here and spoke about amalgam or the preparation of cavities, etc., we would have had a lively time. But I selected a subject in which I was somewhat interested. I selected the metal salts, because there is something positively definite known about them. I could not come before you with a subject that was absolutely new. No single brain could do that. It would be out of the question.

In St. Louis the other day we had a meeting of the American Association for the Advancement of Science, and President McGill gave a most wonderful demonstration of what radium can do. It overthrows some of our existing views in regard to chemistry. When Roentgen brought out his work with the X-ray he got some of his ideas from Crooke and other learned men; incidentally, he found out the X-ray, and what could be accomplished with it. Now radium has attracted our attention and we will hear a good deal more about it in the future. We know, for instance, that metal magnesia can be decomposed. Personally, I believe that there are only two elements concerned, one a positive one, and most likely a negative one, and the elements may be further decomposed by some new method, as, for instance, radium. However, the question of the action of metals upon tissue is the point at issue in this discussion.

The work of the laboratory and the use of test tubes should not be considered lightly. We know the value of the test tube, and we can not do without it. As to metal salts, I have looked into them very thoroughly. It is almost incredible to believe that a man like Dr. Truman, of Philadelphia, stands by a statement today that he made six years ago. In one of the latest numbers of the *International Dental Journal,* in reviewing a book on modern therapeutics by Stevens, he attacks the statements made by Stevens as to the limitation of silver nitrate in tissue, saying that it does not exist; that he has demonstrated this in test tubes, etc. I have worked in the mouths of poor patients; I have taken the lower second molar, in which there was deep caries; placed in there pure nitrate of silver, sealed it in for months, and after a while extracted the tooth, and it has shown distinctly the limitation of nitrate of silver. My observations have convinced me that nitrate of silver is self-limiting in its action. It precipitates albumin, and silver albumin will not allow the smallest particle of silver to penetrate any farther. It will not do so, no matter what the test tube shows. Living subjects are the ones in which to make these experiments, and experiments show that there is a resisting force in the tissue. There it stops. There is no force behind it. Silver is one metal of all others, no matter what statements are made to the contrary, which is best tolerated by the tissues. It will inhibit caries, and when applied at the right time the carious process is self-limiting, on account of its strong coagulating nature.

I wish to thank you very much for the kindness you have shown me.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held November 16, 1903, with the President, Dr. Fred B. Noyes, in the chair.

Dr. Lloyd S. Lourie read a paper entitled "The Necessity for Early Treatment of Mal-occlusion."

DISCUSSION.

Dr. A. F. James:

During a practice of ten years in a suburban town I found it a duty to observe and care for children's mouths during the eruption of the permanent teeth. This has convinced me of the importance of using preventive methods. My experienc has not been so much in the mechanical treatment of these cases, but more in the line of preserving or retaining the deciduous teeth until the jaws have broadened or developed enough to receive the larger or permanent teeth. To do this I have often found it necessary to correct mal-occlusion in the deciduous teeth by grinding, in order to relieve pressure on some certain tooth or teeth. In this way I have retarded—or believe that I have done so—the too early absorption of the deciduous roots. I have observed in a number of these cases, where there seemed to be an early loss of the first teeth, either one parent or the other has crowded arches or mal-formed teeth, and I firmly believe that there is a certain degree of heredity to contend with in many such cases; and where this is true I have taken extreme measures to support and retain these first teeth by binding or splinting them to firm teeth.

In cases where there is not this tendency for early absorption but where the teeth have been affected by caries, I have made it a practice to be as thorough in the work of excavating or preparing for fillings as in permanent teeth, following out the same thoroughness in devitalizing pulp, or treating abscessed conditions, or filling root canals.

Having retained the teeth until the jaws have sufficiently developed to receive the permanent teeth, the question of just when to extract requires thought and good judgment. I have found many times that the roots were slow in being absorbed and that it is frequently advisable to extract when the teeth are still quite firmly held in place, because of the evident indications of advanced development of the permanent tooth.

It is only by voluntarily advancing such information to parents that we have the opportunity of taking these early preventive measures, and although what I have said may be in advance of the time which the essayist of the evening takes up these cases, I believe it is the time when we, as general practitioners, can make it unnecessary for many of these cases to come into the hands of the specialist in regulating.

When I find a tooth that is partly erupted, but from its position it seems impossible that it will, unaided, come into its normal position, I find it very easy to fit a band to such a tooth, with lip or extension soldered to it, so arranged that it will occlude either lingually, or labially, or buccally with the teeth of the opposing jaw, and can, with the force of occlusion, turn or force such teeth into their normal position, or to a point where nature, unaided, will do the work.

I agree with the essayist fully when he advises the early treatment of mal-occlusion. So many, many times we have parents ask, "Is the child old enough to have this work done?" The idea seems to almost invariably prevail that such cases should not be treated until the child is fifteen or seventeen years of age. Just where they get this information I have never been able to find out, but it seems to be from dentists who do not want to undertake the work.

Dr. B. J. Cigrand:

I dislike very much to see a paper of this kind go by without considerable discussion. It is something in which we are all very much interested, and the subject of occlusion and articulation is one that we must interest ourselves in more as a profession if we intend to make earnest progress, not only in orthodontia, but in operative and prosthetic dentistry as well. The principles that are involved in occlusion and articulation are possibly the most difficult propositions that we as a profession have to deal with. I can conceive of nothing that is more interesting than the study and philosophy of mastication, which underlies all classes of operations calculated to restore oral conditions.

It is a very difficult thing to comprehend a scientific paper of this kind, unless we have thrown upon the screen before us object lessons for demonstrations, steps as they graduate themselves into a perfect operation, and if there is any one thought I would care to commend, it is the work that this paper has cost the essayist in preparing it in this magnificent manner. I do not know when I have seen a paper on orthodontia that was more carefully prepared. We seldom fully appreciate papers of this kind, and certainly we are very often indifferent to the amount of work a paper of this kind has cost. He has shown us the faces, front view and profile. He has shown us three or four models of each case, showing step by step how all of these cases have been treated.

Dr. Don M. Gallie:

I do not feel capable of dicussing this subject, yet I feel it is an act of courtesy to compliment the essayist for the excellent paper he has given us this evening. The very fact that there is a lack of desire on the part of the members of this society to discuss this paper is evidence to prove that we need more such papers as we have had this evening. The fact that we are here as practitioners of dentistry and have had a paper like this presented without a good discussion thus far is evidence that we are certainly lacking in being able to do that which the public expects of us.

It seems to me there are many points in connection with the paper that come very close to us, and one in particular, as the essayist was reading, was made plain to me, and that is a plea for proper care of the deciduous teeth. As to filling the cavities of these teeth, the essayist has shown by his chart how it is possible to cause deformity for life by neglecting to fill cavities on the proximal surfaces of the deciduous teeth, showing that through neglect, carelessness, or lack of desire to properly care for these teeth as the permanent molar comes forward, there may be irregulaity of the whole arch and disfigurement which, if not corrected, will remain with the person all through life. It is quite evident from the charts we have seen this evening that there is certainly more in dentistry than filling root canals and cavities, and it is a good thing for the public and for us that we have men like Dr. Lourie, Dr. Angle, Dr. Case, and specialists of that kind, who can take care of the public and of children afflicted in the manner we have had evidence of tonight. This paper is entitled to a free discussion, and I regret in the city of Chicago, where we have a number of men making a specialty of this work, they are not here. It seems to me they would all learn something from this paper. I found out some things I did not think of seriously before, and I for one feel well repaid for coming here this evening and listening to the paper.

Dr. Fred B. Noyes:

This paper has been specially interesting to me, and I do not want it to pass without saying a few words. The dental profession stands in a special relation to orthodontia which has developed from the fact that orthodontia was the first definite specialty of dentistry. Those men who devote their time exclusively to the study of orthodontia cases have developed a definite specialty of dental practice similar to the development of specialties in medical practice. A large number of dentists turn over all of their orthodontia cases to specialists. On the other hand, many continue to handle their orthodontia cases, but their knowledge of the subject is greatly enlarged because of the development of this specialty. The first class are directly dependent upon the specialist, and to them such a paper as this should appeal, for it is the presentation of the work of a specialist to the general practitioner, giving the general practitioner the results of an experienced specialist and advice resulting from that experience, advice which should govern the general practitioner in referring all special cases to the specialist. On the other hand, men in general practice who continue to care for their own orthodontia cases, receive from such papers an account of the experience the specialist has from handling many cases, and being associated with specialists will help them in the handling of cases they have heretofore failed to treat properly. For those reasons I am especially interested in the paper, and for other reasons as well.

Dr. Lourie spoke very briefly, as he must of necessity have spoken briefly, in presenting a paper covering so broad a subject, of the development of the bones of the jaw. He said, in passing, that at the time at which the tooth is erupted, it is more easily forced into its normal position. He might have gone further and said that when it is carried into its normal position, the normal development of bone takes place in a normal way, and a normal alveolar process is produced; whereas if it is allowed to go into an abnormal position, the formation of bone goes on (it does not wait for the treatment of the case) and you have an abnormal alveolar process developed. This is simply stating a fact that the alveolar process grows up around the roots of the teeth as they erupt. When treatment is delayed we must have a tearing down of the abnormal process and a building up of a new one. While we have no direct evidence as yet to show, we certainly know that in many cases where extensive movements are produced, and the abnormal alveolar process is torn down, the rebuilding is never as perfect; and the alveolar process formed is not as good as would have developed around the root if it had been carried where it belonged and the bone had formed around it in the first place. From an examination of mouths where extensive movements were required, in my own practice and seeing the results of others, I have been satisfied, for instance, that the alveolar process did not come down as far on the labial sides on central and lateral incisors that had been moved labially a considerable distance as it would have done if these teeth were carried there at the time of eruption and the bone allowed to form. I would emphasize this particular feature of the paper, because it is one in which I am specially interested.

Dr. C. B. Roe:

There is one little idea that occurred to me during the reading of Dr. Lourie's paper, namely, that we as dentists have been rapped on the back for neglecting these cases. I have been in practice only a few years and I find it is difficult to get the good-will of small children, also their patience, and get them to endure such operations as have been suggested tonight, particularly at the ages at which Dr. Lourie has performed these operations. I think it ought to be considered almost a marvel that he could perform certain operations at the ages mentioned, because most children are educated by their classmates and playmates to think of the dentist as a demon among people; that whenever he touches them they may expect to get hurt, and that is one of the reasons why irregular teeth in children are very often neglected. A great many parents have very little or no control over their children, and sometimes the dentist can gain their confidence and do work for them when their parents would have no influence in inducing them to have such work done. Take my own case as an example. When I was growing up my jaws did not develop as they should. I was afraid of the dentist, until I was twenty-one years of age, and at that time I attended a dental college and began to wonder if the condition of my jaws could be remedied. With the help of a few professors I realized what a wonderful change could be brought about. I still have a lack of alveolar process in the anterior portion of the superior maxilla, but I am able to articulate very well and mastication is satisfactory.

I am interested in children. I like to work for them, but the first thing I always try to do is to get their confidence; convince them that I am not going to kill them, and having gained this confidence you can accomplish a great deal.

Dr. G. W. Dittmar:

The paper was indeed a most excellent one, and I, too, wish to add my word of appreciation and commendation.

I am sorry, however, that Dr. Lourie did not give us a few illustrations, showing the appliances with which he accomplished those admirable results. I find it very hard as a rule, owing to the shortness of many of the deciduous teeth, to properly adjust appliances.

It is also very difficult at times to adjust bands on partially erupted permanent teeth, especially cuspids, and frequently it is necessary to move these teeth before they are fully erupted. I wish the doctor would elaborate a little on this phase of the subject in his closing remarks.

As regards the treatment of children's teeth, it is beyond question that they should receive careful attention, thereby keeping the teeth and surrounding tissues in a comfortable condition, allowing the child to use all his teeth to the best advantage and thereby preventing what often finally results in mal-occlusion.

My duties in a college infirmary bring me in contact with a great many children and I find that, as a rule, it is almost impossible to do extensive and almost heroic operations like those referred to by Dr. James in his discussion, and I can hardly agree with Dr. James as to the advisability of doing such extensive and practically permanent operations upon the deciduous teeth.

I believe it is the best policy to inflict as little pain as possible and rather than tire or hurt the child too badly, to do rather temporary work, even if it needs to be done over again, in time.

Dr. George N. West:

At the close of the meeting I would like to show my own mouth as evidence of what I consider almost malpractice in extracting one of my permanent cuspid teeth, which has caused every tooth in the upper jaw to move. Dr. Gallie noticed something wrong about my jaw a long time ago, but did not attribute it to the fact that one of my permanent teeth was extracted by a gentleman who had no knowledge of orthodontia when I was a student. I was about fifteen years of age when this tooth was extracted, and it was extracted because it occluded labially, and the result has been disastrous. I can articulate, but it has spoiled the entire shape of my upper jaw.

Dr. Lourie (closing the discussion): There have not been very many points brought that need answering, the remarks having been very complimentary. I wish to express my appreciation of the manner in which the paper has been received. It is evident to me that the statements I made regarding the way the general dental practitioner treats cases of orthodontia are true. I thought possibly the discussion would bring out either a corroboration of those statements or a contradiction of them.

Dr. Roe mentioned the difficulty of treating the teeth of young patients. He said it was necessary to gain the confidence of these little patients, with which I agree. A good deal depends upon the practitioner himself in dealing with such patients. It is a personal matter on the part of the dentist. I find that these young patients are often, if anything, more appreciative than some of the older ones. If they can be given to understand that there is some improvement being made in the position of their teeth, and they understand they are to be benefited by the treatment that is taking place, they become very much interested in the work. I exercise a great deal of care in making my impressions as accurately as possible with plaster-of-paris, so that they shall be exact duplicates of the conditions found in the mouths of patients. During the treatment I use a gauge for measuring the models and measuring the teeth in the mouth, and in comparing the two I allow the patients to see what improvement has taken place. They feel gratified when the results of improvement are shown to them.

Dr. Dittmar asked about the appliances that were necessary for this work. Ordinarily it is not necessary to move teeth until they are erupted enough to let bands be attached to them. In the cases shown this evening it was not necessary to attach anything to the unerupted teeth. Treatment of teeth already erupted will develop the entire arch much more than one would suppose unless he has seen the results of such treatment.

In one of the cases reported the permanent cuspids were just beginning to erupt, or were just barely noticeable through the gums, yet the space between them was widened, about four millimeters, and no attachment was made to the cuspids at all. Simply rotating the incisors, causing them to take more room in the arch, spread the alveolar process and developed the arch in that region. The first permanent molars moved not only themselves, but also the temporary molars in front of them, so that by moving the standing arch in the molar and incisor regions, we got expansion along the whole length of the arch. The attachment does not need to be so large or firmly made in young patients as in old ones, and there are a number of simple appliances which can be used to move teeth while they are developing. But I did not have time to go into the matter of appliances. There were several things that I would like very much to have touched on, but I thought the paper would be too long if I were to cover so much ground. I purposely left out mentioning some points because they are so familiar to the general practitioner, thinking that some of you might mention them, as the effect of caries on the teeth, causing mal-occlusion, and the effect of the latter in causing caries in permanent teeth.

I was very glad to hear the remarks made by Dr. Noyes on the nature of the development that is secured in the alveolar process if the teeth are regulated at the time of eruption, and I think if it is possible to secure evidence of corroboration of the remarks he made, it will be of great benefit to the profession.

THE MINNESOTA STATE DENTAL ASSOCIATION.

DISCUSSION OF DR. W. N. MURRAY'S PAPER ON THE GOLD INLAY.

Dr. C. N. Thompson (Chicago):

I am pleased to talk on this subject because it is one I am greatly interested in, and I was particularly pleased with the tone of the paper, because I detected, I thought, a warning throughout its entire length. We are on a wave of inlay enthusiasm at the present time, and I think in many cases it is carried too far, especially in porcelain work, but in the gold inlay work our only difficulty is in selecting too small cavities. Beyond that its field is anywhere. A great many teeth, yes, I think we might say half the teeth, would be better filled in this way than as they are, for the reason he gave. Gold inlays, in my estimation, are not practical until the protective properties of cement become necessary over the vital parts of the tooth, when they are the best protector we have, and I believe the selection of cavities should be determined by this entirely, because up to that time we can use gold foil fillings that are in every way equal to inlays and I think much easier and more quickly inserted. But when it becomes necessary to use cement to protect the tooth we can then do it with the gold inlay. The extent to which they can be used has little or no limitations; in mesial, distal or occlusal cavities in molars, with the angle or buccal walls still standing, the teeth can just as well be fixed in this way, with the advantage that the gum tissue is comfortable around the whole tooth. In regard to burnishing the matrix I want to say that the use of a moist cotton pledget in the matrix after the latter is approximated to the form of the cavity, is one of the most satisfactory ways of getting the matrix to lie flat on the margin of the cavity. The solid inlay is one of the features that bothers most in that there is shrinkage due to the draw of the center, and it is the main objection to fillings made in that way. Otherwise they are equal to hollow inlays, with, perhaps, the exception that there is not quite the attachment of cement. The hollow inlay being made so it does not rest entirely upon the bottom or floor of the cavity, and having a cement space on the inside. gives the filling the privilege of resting upon the cavity margins more than upon the base of the cavity. This secures a better adaptation to that part, and when you stop to think how easy it is to burnish pure gold when it is as thin as the feather edges of the properly made inlay should be, it would seem that it would give almost, if not quite, as good protection as sealing the cement in.

In regard to the setting and finishing of the inlay I want to speak of just one point omitted in the paper, which was that the margins were left overdrawn all the way around until after the setting. If the margins can be dressed absolutely flush and true at the cervix and the rest left for burnishing we have taken away the part which is most difficult to finish. After setting all the rest should be left lapping and finished at a subsequent sitting.

Another feature that was not spoken of, or, if so, I did not catch it, is the compatibility of such fillings. If the vital parts are protected it is surely better than any other metal filling that can be used.

The doctor spoke of sump as an investment material. I have found sump to be fusible under certain conditions in the melting of twenty carat solder. I have found far greater satisfaction in using pumice and a substance called fireite, which is more effective in inlay work. It does not fuse as does sump.

Dr. Barrett:

What price do you receive for those fillings?

Dr. Murray:

I presume there is a difference in the price I receive and that which Dr. Thompson receives. I never place an inlay for less than ten dollars, and I presume Dr. Thompson would say not less than fifteen dollars. The price would depend upon the amount of labor and the size of the inlay.

Dr. Barrett:

I merely asked the question to find out how cheap the work could be done.

Dr. J. M. Walls:

There is possibly a feeling among some in the profession that inlay work is being overdone. And there is just cause for it. The radical and irrational enthusiast is responsible. We have many enthusiasts in porcelain inlay work, however, whose success in achieving desired results seems to be a guarantee of the permanency of such work. We are fully assured that gold inlays have the positive advantage of a better marginal fit than do porcelain inlays. The gold can always be drawn over the cavity margins to some extent in polishing after the inlay is set.

Some assurance of the permanency of this kind of work was given me several years ago by Dr. Ames, who said that he had been making gold inlays for about nine years and had at that time to see a single case that seemed to be on the wane, or going to ruin. He could detect along the margins of these fillings of nine years' standing, most of which had been under his observation during that period, nothing that appeared to be disintegration.

I speak of this to show what may be accomplished by careful work. It is not in my mind, however, a method of filling for general use; but one for the extraordinary or unusual cases that we meet with from time to time.

We should all be broad enough in knowledge in the field of operative procedure to carry out skillfully any judicious method.

Dr. E. C. French:

I did not intend to say anything until Dr. Walls spoke about Dr. Ames. Dr. Ames is always about two or three years short in recalling work he has done. Dr. Ames put in two oxyphosphate of copper fillings for me fifteen years ago, and now he says it was only ten years ago. I know better. I was in Dr. Ames' office in Chicago at least ten years ago and he gave me a few pointers on gold inlay work. I had been doing inlay work before I saw him and had that instruction. I put in gold inlays eighteen years ago and I have put in a good many since then, and all that have come under my observation again, excepting two, have never shown any appearance of decay around the cervical borders. I put in one inlay on the tip of a lateral incisor; that has been in six years, and I venture to say there is not one dentist in a hundred if he looked into that mouth would discover that it was an inlay. It is on a lower lateral incisor and is in constant use. I saw four within the last week that have been in ten years. I have never seen anything in the way of fillings so satisfactory as gold inlays. I think there are places where you do not want to put them, but in certain conditions there is nothing like the gold inlay.

Dr. F. H. Orton:

In regard to these hollow inlays, I noticed the doctor used this thin gold, 36-gauge, I believe. I would like to ask whether they ever wear through?

Dr. C. N. Thompson:

The gold I was showing this afternoon in the clinic was thinner than is generally used. The occluding part of any fillings might as well be made of 22 or 20-gauge. It is possible to swedge it just as close as you care to, as thick or as thin as you like. However, the gold I used this afternoon could be used as well as any other, simply reinforcing after investing by laying a piece of metal on the inner side. It is my custom to a lay a piece of clasp metal underneath the occluding surface, on the pure gold. It has been my fortune to see gold inlays that have been in so long that it seems improbable. I know a practitioner of considerable note in Chicago who has been practicing for fifty years, and within the last year or two I have seen four or five inlays that he put in before the Chicago fire. That was in 1871, and how long before that time they were in I do not know, but they were in excellent condition, and better than other work put in the mouth at the same time, that is, fillings inserted in other ways, and in one case it was practically the only filling left that was put in at that time.

Dr. Arthur E. Peck:

I want to compliment the essayist on his handling of this subject, as, in my opinion, it is one of great importance. The gold inlay has its place and can be used in many large restorations in molars and bicuspids when the walls are too weak to admit of the necessary strain accompanying the insertion of a gold filling. The gold inlay is also beautifully adapted to restoring the grinding surfaces when the occlusion has worn the surfaces down, as we often find in people past fifty years of age, the fusing of the gold giving us greater resistance than is possible with the mallet. The method for doing this work which the doctor has given us, is rapid and quite exact, appealing to the busy man as thoroughly practical; but there is still room for improvement, and I hope that this paper will be sufficient incentive for some of us to try to bring it to a still greater degree of perfection than that which has been outlined by the essayist.

Dr. W. N. Murray (essayist):

I feel very grateful for the kind manner in which Dr. Thompson and the rest of the gentlemen have dealt with me in my presentation of this subject. There were many of the details of the work I did not go into; I simply outlined the class of cavities where it should be placed and the class of teeth upon which we should use this work. As regards the inlay we have had demonstrated to us this afternoon by Dr. Thompson, I have had no experience with it whatever, consequently it would come with very ill grace to offer any criticism. The inlay as he makes it, as far as the mechanical process is concerned, is certainly advantageous to us all, and I am going to try to do some of that work, and I feel very grateful to Dr. Thompson for bringing the work before us. So far as the solid inlay is concerned, in my own practice I have obtained results entirely satisfactory to myself and the patient, and yet my work has been open to improvement. I think Dr. Thompson with his larger experience in inlay work has been very kind in giving us what he did, and personally I want to thank him for it.

THE ODONTOLOGICAL SOCIETY.

A regular meeting was held at the Wellington Hotel November 10, 1903, with the president, Dr. E. J. Perry, in the chair. The subject for discussion was the annual presidential address.

DISCUSSION.

Dr. Truman W. Brophy:

It is a great pleasure to us to have so many of our brethren here with us tonight as visitors. It does not seem to make much difference where we meet; whether in Chicago, St. Louis, New York or in Europe, the same fraternal feeling is always with us. We belong together, and the same social and fraternal feeling goes out from one to the other. I remarked at the London Dental Club a few months ago that it did not seem to be any different from what it is at home. The same feeling and the same spirit were there; the same line of thought. We are one and we work together no matter what they call us. The name of the profession is immaterial; our line of work has been laid out for us by those who have gone before. We have this work to do and we expect to do it to the best of our ability.

I am always pleased with anything that Dr. Perry says or does. He has given us enough matter to keep us discussing for a week, but the most important of the many things he mentioned has to do with prophylactic dentistry, the preservation of the human teeth. It is a topic that appeals to every dentist. What can we do to prevent the destruction of the teeth?

Our good friend Kester may be right after all that by general inoculation with serum we will be able to stop this destruction. It would be a great boon to suffering mankind, but I am not as enthusiastic along that line as Dr. Kester, for I can not see how any general medication will prevent the inception of diseases which are the result of carelessness or the lack of knowledge of the necessity of cleanliness. In my clinics at the college I am faced constantly with the question, Why is it that we can not do more to impress upon mothers the importance of oral hygiene? We are constantly in contact with diseases, no longer of the teeth themselves, but dependent upon diseased conditions of the teeth for their origin, that through the medium of infection are carried to parts sometimes quite remote, thus leading to complications that are difficult to control. Oftentimes the result is a serious deformity, just for the want of a little knowledge of oral hygiene and the enforcing of hygienic measures.

Only today a boy of four was brought to me suffering from a necrosis of the right half of the lower maxilla, the result of an infection from the first deciduous molar tooth. This is only one instance of many such cases that are due to the want of a little knowledge on the part of the mother as to the importance of preserving the deciduous teeth. When you ask them why they do not take better care of their children's teeth they answer, "Why, what is the use of caring for these baby teeth? They will get better teeth later." The statistics brought out at the meeting at Madrid last April showed that 94 per cent of all the children in the public schools of Germany are suffering from diseased teeth, and of this 94 per cent many have serious complications which have arisen from the infection carried from these teeth into other parts of the body. And yet how little is being done to prevent this.

I sometimes think of the way the Germans do things as compared with the way we do things. For example, the old kings of Prussia planted pine trees in straight rows and those trees are now great forests. No man can cut down a tree on his own ground, even, without the permission of the government, and he must obligate himself to plant three trees under the inspection of a government officer. If all three trees die he must plant others, and in this way the great forests of Germany are perpetuated. In this country the trees are destroyed ruthlessly and not a step is taken by the government to stop this destruction of our forests or to perpetuate them in some other way. And so it is with oral hygiene. In Europe they are debating measures that will make it obligatory to inspect all school children, not only so far as their teeth are concerned, but also the whole organism. If the eyesight is defective; if there is a deformity; diseased teeth; diseases of the skin or any other ailment the government is to look after them just as they look after their forests.

We have these things yet to learn; and yet there are men in America who say that the American dentists lead the world. The old world leads us, and strongly too, along the lines of prophylactic dentistry and we have much to learn from those professional brethren across the water. When we have the great meeting at St. Louis next year many of us will be astonished at the progress that has been made by our foreign confreres along these lines. I do not believe that any one who has been abroad and noted the progress that has been made there would claim for a moment that the American dentists are leading the world in all departments of dentistry, for it is not true. I appreciate as much as any one the high degree of digital skill the Americans have acquired in the past two or three decades, and how much has been accomplished in this country along the line of digital manipulation, but I am not unconscious of the fact that the dentist of Europe has acquired a high degree of skill also.

A young man, who until recently was connected with the Chicago College of Dental Surgery, went to Dresden, Germany, to assist Dr. Jenkins, the man who has done so much to develop the porcelain inlay. He wrote me that he was amazed to see how much they had accomplished there. When he went over there he felt that he would teach them a great deal, but that he had not been there very long before he found that he would do well to be an apt student himself. He learned much from them. I think we have a tendency to overestimate what we do and not gather in as eagerly as we ought to the fruits of others' efforts.

DR. A. O. HUNT (Omaha, Neb.):

There are some places in this world into which one seems to fit; you are comfortable and satisfied, and this society is one of those places. Any one who has ever been associated with it, either as guest or member, for I was a guest before I became a member, feels very comfortable at its meetings. Everything is social and professional, and I believe that there is no society in the West that does so much for dentistry at all times as does the Odontological Society of Chicago. Those who have attended its meetings regularly know how thoroughly a paper presented before it is discussed in all its phases and in perfect honesty of purpose. The result of it all is that this spirit of comradeship and companionship follows one at all times.

In changing my residence to the city of Omaha I at once organized an Odontological Society on the same plan as this and the same comradeship exists there as here, but we have not been associated with the class of men who are all the time doing something for dentistry as you are here. Chicago is a phenomenal center in that respect and always has been. Some of the very best efforts made in this country have emanated in Chicago and in this society. This association is representative of the eminent men in the profession and it will always remain such.

I was very much interested in what Dr. Brophy said about what we have done and what we are doing. No matter what the Chicago Medical Society may choose to call us, evidently they have reached that stage of their existence when they recognize that dentistry is a science and it is not only a specialty of medicine, as they like to call it. It is a distinct science; one that at present is nearer its ideal than any other professonal science, not excluding medicine. This is not a theory but a fact with which you are all perfectly famliar. A child placed in your hands at its birth would reach adult life without suffering one moment of pain on account of its teeth; nor would it ever lose a tooth except by a physiologic process. It would arrive at maturity with every tooth in its mouth in perfect condition. That is what dentistry is capable of doing today. The deciduous teeth are receiving more care and attention at the hands of dentists today than ever before; even if no more is done than to hold a little cement in a cavity until it has hardened. You relieve the child of its fear of the dental chair and of a dental operation, and at the same time you educate the parents as to the importance of what you are doing. The child is comfortable; it can masticate without pain and to better advantage; it complains less of pain; the household is a thousand times better off because you held that little bit of cement in the tooth cavity. You can not arrest the decay or remove it, and yet, by that simple little act, you have succeeded in arresting the decay temporarily, at least, and sometimes during the life of the tooth. You are educating the people; slowly but surely.

Why do we not do more? We are doing our share all the time; we will do more later on. We are not as old as Eruope.

In proportion to our age and experience we have done very well, indeed, not only in the matter of digital skill, but along other lines as well. To my mind there is no profession in the world today that is doing so much toward the salvation of the human race, attempting to make a better race of it, as is the dental profession. Gentlemen, we have every reason to be proud.

Dr. G. A. Bowman (St. Louis, Mo.):

I feel deeply how pleasant it is to dwell together in unity and I would be recreant to my better nature did I not thank you, gentlemen of this society, for the privilege of being with you tonight. It seems to me, however, that I can not take that so much to myself personally as to the city from which I come and in which have dwelt so many brethren whom you doubtless have known better than you know me. When I mention the names of Ford, Judd, Eames and Spaulding, and others who have gone to their home in the beyond, I think that you will agree with me that you do honor to yourselves as well as to those of us St. Louisans who are present here tonight.

I can not discuss this paper, nor can I criticise it, but it is a pleasure to hear a review of what you have done in the past year. I have no doubt but that it will ramify dental circles for years to come. There are those here who are more distinguished in college work than I for, although I have been identified with college work in years gone by, yet I am not in the fore in this service at present. These men are better able to talk on this work and should be given the opportunity to do so. I thank you for your courtesy in inviting me to be present with you tonight.

Dr. A. E. Peck (Minneapolis, Minn.):

I scarcely need say that I consider it an honor and a pleasure to be with you tonight. This society has made a reputation for iself and it would be useless for me to attempt to eulogize on its work, for I could say only that that everyone knows. The work of this society leads that of all others and it is beyond question superior to any in this country. The previous speakers have taken up this matter much better than I can, and I simply wish to express my appreciation and thanks for having the opportunity of being with you tonight. I hope that the good work may go on.

Dr. J. H. Kennerly (St. Louis, Mo.):

The hospitality and friendship that have been shown me in this society will ever furnish me with pleasant recollections of my visits to your city. I am always pleased to be in Chicago, and I am equally pleased to have the opportunity of welcoming my Chicago friends in my own city, although, unfortunately, they do not come as often as I should like to see them.

I enjoyed the president's address very much, indeed. There is much food for thought in it, but it is impossible to attempt to discuss it in the time allotted to the discussion. One thing that particularly impressed me, however, was the subject upon which Dr. Brophy laid such stress—oral hygiene. I believe that one of your members, Dr. Wassall, read a paper on this subject before you some time ago. It is a very important subject and one on which we should lay more stress. At the meeting of the National Dental Association at Niagara Falls last August I heard a gentleman say that if he had one-quarter of an inch of alveolar process remaining around a tooth he would retain the tooth in position; crown it and use it as an abuttment for a bridge. I took it the best I could, although I did not believe it. But if my eyes or my glasses did not deceive me one of your members showed me a tooth yesterday that was held in place without any support at all. These things furnish me with something to think about when I go back home. I think it must be a poor specimen of a man who can not give something in return for the many things he learns by contact with his professional brethren. I have never yet visited the office of any dentist, either socially or professionally, without having been benefited in some way.

Dr. Bowman will probably not agree with me when I say that I believe that the dentists of St. Louis are not paying the attention to prophylaxis that is given to it in this city. We have in this city seen cases that many men would consider as absolutely hopeless, that the only remedy is the forceps, and yet the case I saw yesterday raises the question in my mind, "If one man can do this, why can not we all do it?" Perhaps some men are better fitted to this work than most of us are, yet it is gratifying to know that some one can and is doing it.

Dr. W. T. Reeves:

I appreciate very much the honor of being with you tonight and wish that I could fittingly express that appreciation. I have followed the papers and discussions presented to this society with a great deal of interest, and I have noted that this society was responsible for some of the best movements that have been made in dentistry in the last ten years. The president's address touched upon many important points and I was particularly interested in his reference to inlays, which I feel is the coming work in operative dentistry. All that can be said along that line tends to promote its use, and when more of us become familiar with this work it will spread beyond all expectations. In the operative field porcelain and gold inlays will be the acme of our success. If the discussion had taken a more technical trend I could say many things, but in a general discussion I think I have nothing more to say.

I thank you for your kind invitation to be with you tonight and assure you that it is appreciated.

Dr. F. E. Roach:

This is the second of my visits to this society and I assure you that I have never enjoyed any meetings so much as these. One of the things that it is impossible for me to resist is a gathering of dentists. I feel at home among them and I profit from such association. I enjoyed Dr. Perry's address very much, but feel that its breadth and depth prohibit extended discussion.

Dr. J. G. Reid:

Although I have had the opportunity of being associated with a couple of renowned gentlemen who are doing inlay work, yet I have not been an enthusiast on the subject. These gentlemen have swung with the pendulum both ways, but have now reached the middle point. I have seen much of their work. and some of it, I must confess, has been very nice; but, thanks to their good judgment, they have never overstepped the bounds in the adoption and use of inlays. They have not relegated their pluggers to the scrap pile, nor have they adopted inlays, either gold or porcelain, for other work that has proven itself a success and that has made dentistry what it is today.

I believe that porcelain inlays have their place in dental practice, but I do not believe they will fill all cavities and render good service. From what I have seen I believe that where gold inlays can be used they give better service than porcelain inlays. I think that there are places where the porcelain inlays should be used entirely; for instance, where the filling is conspicuous, but in molars with large cavities, teeth that must give good service, there I believe the gold inlay is the only inlay that should be used. I have seen many failures of porcelain inlays, even in the hands of experts, men who are capable of doing good work. I can not subscribe to the faith under which those inlays were introduced. To my mind the very basis on which those inlays are inserted condemns the process. It is impossible to insert an inlay in any cavity in which there is a continuous tendency for the filling to come out. I have seen some of this work and I know this to be true. I believe that inlays have their place and I want to go on record as being of that belief, but at the same time I think that the profession as a whole has been overenthusiastic in that matter. Still we are not nearly as enthusiastic now as we have been and I believe that the time will come when the inlay will occupy the place it should have.

DR. ELLIOTT CARPENTER:

That part of the president's address referring to the swinging of the pendulum has afforded many of us an opening to discuss the paper. Both Dr. Hunt and Dr. Brophy spoke of the attitude of the medical profession, especially the Chicago Medical Society, in asking that we join with them in their work and also to acknowledge that we are a specialty of medicine. In my opinion this matter of specialties is quietly resolving itself to the swinging of the pendulum back to the point where it will rest in the center of its arc. There are men who have been our peers and our teachers and we take off our hats to them and respect and honor them for the work they have accomplished; but the time has come when our profession is too broad to be made up of many specialties. The history of medicine has borne that out. There always will be a necessity for the specialties. Men will be fitted to do one line of work better than they can all lines and they will develop that line of work and also their capabilities to do that work. There could not be enough specialists to do all the work in any one specialty. Yet there is a tendency to over-specialize. Medicine is experiencing that at the present time. The pendulum is swinging the other way and there is a cry for the man who is revered more than any other, the general practitioner; the old-fashioned family doctor; the man before whom all others take off their hats.

In our own profession we should be more broad-minded and not only do all the things that are demanded of us, but do them well. To do this we must rely on the help and research of men like Brophy, Harlan and Reeves, and others working along special lines. Only in that way can we be general practitioners in our own profession.

Dr. E. A. Royce:

There are two features of the workings of the dental profession during the last year that have particularly attracted my attention and delighted me. The first and most important is the tendency to conservatism. First within my time came the new departure, which was a fight against those who were working gold. From the one extreme of the all-gold worker they went to the other extreme of the all-amalgam worker. It took a long time for the conservative element of the profession to get the upper hand; to get to the point where a man felt free to adopt and use the filling material which his better judgment told him was the proper material for the case in hand.

Then came the inlay sway, and the pendulum swung far with many of us. There are few men in the profession who are more anxious than I to see the inlay come to stay, to be the ideal filling, but the conservative position is the one we must occupy. I believe that conservative position will be the adoption of that filling material which is most suitable in the individual case. no matter whether it be a gold or porcelain inlay or a gold, amalgam, cement or gutta-percha filling. The tendency of the profession to come to that stage has delighted me beyond measure.

The other thing that has delighted me is the tendency on the part of the American dentist to credit progress in dentistry to the foreign dentist. As a people we are rather inclined to flap our wings and crow too much. Observation has convinced me that the American dentist has every reason to be proud of his foreign brother. I believe that the American dentist possesses a digital skill that is second to none, but we must not let our enthusiasm carry us off our feet. We are not the only dentists in the world.

These two things in particular have pleased me very much. But there are many other points in the address that would bear discussion. The attempt to discuss them all is too great at this time, yet we appreciate everything that he has said. Our president has done well and the Society owes him thanks. His address was a delightful valedictory of his incumbency in office.

Dr. W. V-B. Ames:

Our president did himself proud by giving us such an interesting retiring address. It escaped being such a trial as the usual retiring address. I am very glad that Dr. Brophy was prevailed on to open this discussion, because we are indebted to him for his sincere and liberal presentation of the status of dentistry in different countries.

The various speakers have spoken of the pendulum swinging from one extreme to the other. and much has been said about inlays. Considering this subject from the standpoint of cements, as we necessarily must. I have come to realize that in the production and use of cements there has been just such a swinging of the pendulum. A few years ago all our cements were more or less porous; today the attempt has been made to overcome that porosity, and, I fear, to too great a degree. By attempting to overcome the porosity of cements some have been produced that are very brittle and that lack the actual strength that is needed and required of cement by the purposes for which we use it most.

Dr. A. W. Harlan:

I do not suppose that the president really wanted us to discuss anything in his address except the extra flourishes he put into it after reviewing the work of the Society. But there is something I want to speak about that he did not mention.

With reference to the action of the Chicago Medical Society and the Chicago Dental Society, the law says that dentistry and dental surgery is a profession. That is true the world over, except in Austria and a few other countries where dentistry is medicine. We have about one hundred and fifty dental societies in this country, and we have quite a number of dental periodicals. The education that is given to the dental student fits him to practice dentistry and not medicine; the education of the physician fits him to practice medicine and not dentistry. Therefore, I do not see how you can legally or logically say that dentistry is a specialty of medicine, although dentistry is a part of the healing art.

In 1900, for the first time in the history of dentistry in this country, the president appointed four official delegates to the International Dental Congress at Paris, thereby officially recognizing dentistry as a distinct and separate profession. In 1903 the president of the United States appointed seven or eight dentists as delegates to the International Medical Congress, Dental Section, thus confirming the act of his predecessor. There is one thing, however, that the lawmakers of this country have overlooked, and that is this: In connection with the laws regulating the practice of dentistry there is no provision made for revoking a license for unprofessional conduct or dishonorable conduct. In the legal profession, if a member is guilty of unprofessional conduct, the members of that profession may go before a tribunal and place the facts before a judge, and if they are sustained the defendant may be disbarred and prevented from practicing that profession in the State in which the offense was committed. Then they may go before the District Court of the United States and have the culprit disbarred there, so that he can not follow the law or be an officer in any court of this country.

In neither dentistry nor medicine are our boards of examiners clothed with that authority. I have been told by an eminent jurist that it would in many States of the Union be the simplest and easiest thing to get an amendment to the dental law that will make it possible to establish a tribunal before which such breaches of professional conduct can be tried and the license of the offender revoked, if necessary.

The incident that brought this matter to my mind was the following: A girl of fifteen was taken to one of the dental parlors conducted by one of the large stores of this city because she had two or three little cavities in her teeth. They cut off these teeth and fitted four gold crowns to them. The little girl finally fell into my hands. I took off those crowns and found, as I suspected, that the pulps of the teeth were alive. None of these teeth required crowning. They should have been filled. That is what I call dishonorable, unprofessional and disreputable. It is criminal. I related this to the eminent jurist and he said that not alone is it criminal to the patient, but to the dental profession, and that the profession owes it to itself to have a tribunal before which it can lay such facts and which can revoke the license of such unprincipled practitioners of dental surgery. Who is more fit to judge these men than three or five men of their own profession? An amendment might be made whereby the members of the board of examiners could also exercise this judicial function and make impossible such flagrant violations of the laws regulating the practice of dentistry. Many similar crimes are committed that are never brought to light; all the more need for such a tribunal to which we can appeal. That is one of the things we need in addition to the teaching and promulgation of the laws of oral hygiene.

This Society was organized by ten members of the profession of this city. Only one of the original ten has died; probably the longest period that ten men have been associated, and they were not all boys when the Society was organized. One of the things that this Society did in its early history was the promulgation of some theories with reference to the management of pulpless teeth. These were published in pamphlet form and the essentials of that pamphlet have been incorporated in the textbooks of all countries, although many times the source of these teachings was unknown. Now we are engaged in the attempt to publish a small pamphlet on the rules of oral hygiene so that the world may have it. It is not particularly for the benefit of the dentist, although many dentists would be benefitted thereby, but for the benefit of mankind as a whole. How many dentists proceed to fill teeth without first cleaning them? If we can only interest some people in this matter of disbarring dentists who are guilty of unprofessional and dishonorable conduct, so that we can keep our skirts clean, we will have enough work ahead of us to keep us busy for the next ten years.

Dr. A. O. Hunt (Omaha, Neb.):

In the interest of Nebraska I wish to state that our State board has the power of which Dr. Harlan speaks and at the present time it is engaged in a legal struggle which is interesting. The board has revoked the license of the Union Dental College, of Omaha, and the college, by injunction, attempted to nullify that action of the board. The injunction was denied and the case is now before the Supreme Court of the State. The decision will be made in the near future. The attorney-general of the State is confident that the decision will be in favor of the board, upon this theory: that whenever a State passes a law giving a board certain authority and the board acts upon that authority, there are very few courts that will decide against what the people of the State want as is expressed by the law in the matter.

Another feature in connection with this matter has interested me immensely, and I, incidentally, was the cause of getting it into shape. The proper place for the board of examiners is to be a part of the board of health. That body should consist of physicians, dentists, pharmacists, veterinarians and such as are interested in the health and welfare of the human family. This is the case in our State. The dental board is part of the board of health.

Dr. L. L. Davis:

I was very much disappointed in the discussion on the inlay question. I expected to hear it thoroughly discussed, especially as we had with us a number of experts in that line. There is no doubt that this is a subject of great interest at the present moment. The subject of oral hygiene also is one of the topics that will receive attention at the hands of the various dental societies of this country as well as in the societies abroad. It is a revival of an old subject that will not do any harm; in fact, it is certain to do a great deal of good.

One of the first speakers said that any child placed in the hands of a dentist at its birth could reach adult life without having a toothache and without losing a single tooth except through a physiologic process. I wish to speak of the exception that proves the rule. I have here a second premolar, which was removed from the mouth of a child six years old. He is just getting the first permanent molar. The first premolar on the other side is hanging, and the two on the other side are loosening and there is no sign of any permanent teeth. This is all due to absorption, and the absorption is perfect.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE ETHICS OF SPECIALISM.

One of our readers has written to ask an expression of opinion on the ethics governing a specialist in the practice of dentistry. He says: "In view of the fact that specialism in dentistry is increasing in favor and occupation, and that such a departure is not in accord with standing resolution No. 3 of the National Dental Association, and the code of ethics, Article II, Section 2, which says that calling attention to 'peculiar styles of work,' 'special modes of operating' is unprofessional, it makes a very interesting question."

We think the intent of the code of ethics in this connection refers to the practice of general practitioners calling attention to special methods of their own, thereby implying a superiority in this respect over other practitioners. We do not think it has any reference to an announcement on cards or stationery by a man who devotes himself solely to a specialty that his practice is limited to that specialty.

But the question arises as to the status of the man whose inclinations lead him toward one particular branch of dentistry and who wishes ultimately to make a specialty of this branch, but who is not yet quite prepared to relinquish general practice and confine himself exclusively to the specialty. May this man ethically announce on his stationery that he pays particular attention to this branch while he is yet engaged in general practice? In other words may he announce himself as a specialist before he cuts loose from general practice?

This is an interesting question upon which we should like to have an expression of opinion from the profession. The rapid growth of specialism in dentistry renders it necessary to consider the ethics of the subject in all its bearings, and it seems opportune at this time to have a full and free discussion, to the end that a definite conclusion may be reached and a status given the matter for the guidance of practitioners in the future. THE DENTAL REVIEW invites communications on the subject.

ANOTHER STATE BOARD APPOINTMENT.

In our April issue we announced the appointment on the State Board of Dental Examiners of Dr. C. R. Taylor, and we are now pleased to state that another representative member of the profession has received a similar appointment. Last month Governor Yates appointed Dr. C. P. Pruyn, of Chicago, as a member of the Board, and the profession and people of the State are thereby to be congratulated. Dr. Pruyn is a man well known as an upright, capable practitioner, and the interests of the people will be safeguarded in his hands. The personnel of the present board is such that Illinois need not blush for the character of the men representing it in regulating the practice of dentistry in this State, and Governor Yates has once more the thanks of the profession for his appointment.

THE EDITOR'S DESK.

THOUGHTS.

If it is true that "thoughts are things" then we should be very careful to guard the kind of thinking we do. It is undeniable that a man's method of thinking largely establishes his character. It is not altogether the things he does but the things he thinks which shape his destiny, because a man's thoughts must sooner or later dominate his actions. And if a man is to act rightly he must think rightly. I sometimes think that the power of secret thought is not fully appreciated by the average individual. Most people seem to imagine that it matters little what they think so long as they do not allow a bad thought to manifest itself in an open act. But this is a very great fallacy. A man can not long indulge in unworthy thoughts without sooner or later being thereby influenced in his actions, and even if he were able for an indefinite time to so control his acts that they failed to mirror his thoughts, there is an inevitable disintegration of moral and mental fiber following wrong thinking which saps a man's character and manifests itself in one way or another just so surely as a cause produces an effect.

In every man's inner consciousness then there should be established as strict a monitor as if the eyes of the entire world were upon him, and it should be considered as highly essential to think good thoughts as to do good deeds. It is positively dangerous to do otherwise. Not that it is possible to prevent wrong thoughts from entering the mind at times. I do not believe there was ever an ordinary individual who was by nature so pure minded that an evil thought did not occasionally enter his mind. They seem to pop in on us without the slightest provocation; it is often inconceivable where they spring from. They frequently take a very alluring guise, but if we are honest with ourselves we can not fail to recognize them for what they are, and the moment we recognize them we have a rigid duty to perform. If we can not prevent them from entering the mind we can at least expel them the instant they gain entrance, and this we should do resolutely and always. The surest way to prevent the mind from dwelling on bad thoughts is to keep it as constantly as possible occupied with good thoughts, and this is the safest road to contentment and happiness.

REVIEWS AND ABSTRACTS.

NOTES ON THE TREATMENT AND FILLING OF TEETH. By William Cass Grayston, L. D. S. Second Edition. Pages, 254. Published by The Dental Manufacturing Company, Limited, London, England.

While the author modestly says in his preface that the intention of the book is "merely to allude to certain points in operative dentistry which have particularly interested the writer," yet it will be found that Dr. Grayston has been a somewhat extensive reader of the literature of the subject, and has condensed and formulated the opinions of many men in addition to his own. There is one very pleasing tendency noticeable in our more recent books on dental subjects, and that is an absence of the prevailing padding which at one time marked many of them. In this book the author has sought to give the pith of the subject in as few words as possible, and the result is that the reader is not wearied with discursive writing.

Sunshine Thoughts for Gloomy Hours. Prose and Verse. By George H. Chance, D. D. S., M. D. Pages, 105. Cloth, $1.00. J. K. Gill Company, publishers, Portland, Ore.

The dominant note in this little book is one of hopefulness. Dr. Chance evidently does not believe in looking on the dark side of life, and we are always pleased to find a professional man who can turn from the topics of everyday practice and give us something to think about in the active, moving world outside. The book is divided into such subjects as "Patriotic," "Fads, Facts and Fancies," "Fraternal," "Professional," "Anniversaries, etc." It is an inviting little book, and the publishers have spared no pains to make it attractive.

DOMESTIC CORRESPONDENCE.

Editor Dental Review:

Dear Sir: I am requested by the Chicago Retail Druggists' Association, who desire to protect the public against the evils growing out of the illegitimate use of cocaine, to call the attention of the dentists of Illinois to the fact that under the new statute governing the sale of cocaine, prescriptions containing the drug named should not be refilled, and it might be well for the prescribing dentist to make this notation on each prescription of the character named: "This prescription is not to be refilled."

Thanking you in advance for the kindly assistance you may render us, I am, on behalf of the C. R. D. A., sincerely and fraternally yours,
Charles M. Carr.

NEW YORK LETTER.

The April meeting of the Institute of Stomatology convened at the Chelsea, President A. O. Brockway, presiding.

A paper was read by Dr. Leo Green, entitled "A Plea for Thorough Dental Education."

The deans of three prominent colleges and a well-known representative of the oldest college were scheduled to speak, and right well did they do their parts.

The discussion was opened by Dr. Eugene H. Smith, of Harvard, who in an eminently gentlemanly and conservative manner combatted the statements of the essayist. His paper was very general, but not conclusive. It all tended to emphasize his belief in the importance of a preliminary college education before entering dentistry.

Dr. Smith expressed himself as being in full sympathy with the idea of higher preliminary examinations and gave his reasons. He differed with the essayist regarding the employment of recent graduates as demonstrators, on the ground that the recent graduate was a better teacher and more up-to-date than one who had graduated years before. He agreed that a college educated man made the best student, but could not accept all deductions of the essayist.

Dr. B. Holly Smith, of Baltimore, expressed himself as impressed with the boldness of the paper in some of its statements. He did not feel in sympathy with the contentions of the essayist. Said colleges were too few; deans too few. New York City should organize two or three more, and do the wonderful things suggested by the essayist. He disagreed decidedly with the essayist. Gave Dr. Eugene Smith great credit for his moderation, and pitched into the essayist emphatically, saying plainly that he did not care for the A. B. degree as far as dental students were concerned.

Professor Kirk said there was a great difference in quantity and quality. "Any old A. B." would not answer. It must be one adapted and trained. He agreed with the gentlemen who preceded him in the main, and largely disagreed with the essayist.

Professor Weisse, of the New York College, followed. He claimed to be very optimistic and lamented the essayist's pessimism.

Altogether these gentlemen of the colleges seemed to be banded to defend the colleges against some of the assertions of the essayist. They failed to get on the higher plane which was expected of them. All treated the subject from too narrow a point of view.

Drs. E. A. Bogne, R. Ottolengui and S. A. Hopkins also took part in the discussion. Their remarks, particularly those of Dr. Ottolengui, emanating from one whose position was neutral, had a modifying effect. Their discussion indicated the non-partisan and broader aspect, whereas the gentlemen of the colleges treated the subject intensely seriously, quite evidently feeling that they had "castles to defend."

The April meeting of the Odontological occurred on the 19th inst. The essayists were Dr. A. E. Webster, of Toronto, Canada, and E. H. Gane, Ph. C., of New York.

There was a fair attendance only, which is much to be regretted.

Dr. Webster read a paper in relation to root fillings, in which he referred to acetozone and iodoform, especially the latter because of iodine combination. He claimed that bacteria will penetrate all known root filling materials, as will also moisture.

In the discussion which followed Drs. Perry, Hatch and Ottolengui, especially participated. Referring to the late Dr. Lord, Dr. Perry said that he did not fill many root canals which we would expect to fill.

Dr. Hatch said, in reference to pulp mummification that "it is a delusion and a snare." Thought it dangerous to teach that any portion of the pulp could be left in the tooth or canals.

Dr. Ottolengui referred to the use of excessive applications of arsenic of cocaine and subsequent irritation and soreness caused thereby.

Mr. Gane's paper was entitled the "Dental Application of Some New Oxygen Compounds." After describing various chemical matters and illustrating by several experiments he led up to a description of calcium peroxide and its probable combination with other ingredients in a tooth powder.

The paper is quite opportune, for one of the larger drug houses is about to place before the profession a tooth powder, the basis of which is calcium peroxide, which upon contact with the moisture in the mouth liberates oxygen, thus forming H_2O_2 (hydrogen dioxide).

Mr. Gane's paper was discussed by Professor Ward.

This being the annual meeting and election of officers in the Second District Dental Society, commonly known as the "Brooklyn Society," there was nothing done except reports of officers and election. Matters seem to be in very good condition with this body.

The election resulted as follows: Horace P. Gould, president; Thaddeus P. Hyatt, vice-president and ex-officio chairman executive committee; John H. Hanning, recording secretary; E. Howard Babcock, corresponding secretary; W. W. Thompson, treasurer.

This month's meeting of the First District Society was purely a business one.

Official yearly reports show the Society to be very flourishing.

Again we were in attendance at this month's meeting of the Central Dental Association of northern New Jersey, April 18. Dr. C. S. Stockton presided. They tried a change of dinner program, which did not meet with general approval. It was at the University Club in Newark. The house is so arranged that it was necessary to seat all at small tables, which made the service longer and interfered with preparations for the meeting following. Some idea of the confusion occasioned can be imagined when the scheduled and actual time of meeting is compared.

Dinner was called for 6:30, but was not served till 7:30. Meeting was called for 8:15, but was not called to order until almost 10 o'clock. But the essayist of the evening was the attraction and few left before the meeting was over, which was about 11:30. Discussion was much curtailed because of lateness of the hour. Robert L. Watkins, M. D., of New York, was the gentleman who read a short paper and spoke of "Septic Blood in Pyorrhea Alveolaris," which was accompanied with a demonstration of tubercular blood taken from the living patient and photographed immediately, then thrown on the screen and illustrated stereoptically.

Dr. Watkins showed photographs of a series of "freshly drawn blood" slides, some indicating good physical condition, others showing quite plainly diseased conditions of the blood.

Dr. Watkins contends that pyorrhea alveolaris, from its inception, is always accompanied with pus in the blood. In these septic conditions the blood is in a watery condition (probably meaning the blood plasma). The corpuscles are flabby and somewhat asymmetrical. Less fibrine is present than in normally healthy blood.

A patient was present from one of the city hospitals, who has been under treatment for consumption. The doctor punctured the skin in the region of the wrist, where he was pretty sure of procuring arterial blood, secured a drop of blood on a microscopic slide under cover glass, and, after retiring to a dark room, photographed and developed it, then returned to the room and produced the picture on the screen. In his remarks about this picture he said that it did not represent active consumption. He seemed just a little mystified about it.

It developed later, when Dr. Herrold, the physician who was responsible for the presence of the patient, spoke to Dr. Watkins' paper, that said patient has been under treatment for two years at the hospital and that they have been injecting some form of antitoxin into him at regular intervals. The patient was never previously subjected to blood examination, which would have made the present exhibition more highly interesting. The only microscopical examination was of the sputa. It was asserted that that showed marked diminution of spores.

This explanation by Dr. Herrold seemed to relieve Dr. Watkins, sustaining his analysis as it did.

H. M. Dawbarn, M. D., of New York, opened the discussion of the paper. He seemed to doubt that pyorrhea alveolaris could be the cause of presence of pus in the blood; said leuccocytosis was present in only six of the many fevers and they were typhoid, consumption, measles, mumps, grip and one other, which I missed.

Dr. Cutler, a physician of New York, sustained Dr. Watkins in his work and spoke, too, of his father's (Elisha Cutler) and his own work in investigation. Beef eating, he thought, was almost a panacea for many blood diseases and even pyorrhea alveolaris, and advised one of the gentlemen present, a physician—who apoligized for his inability to contribute anything of interest, but that he had come to listen and to ascertain how to save his loose teeth—to subsist on good beef diet. The gentleman said afterward that that was his chief article of food.

Earlier in the evening, while Dr. Watkins was absent from the room preparing his photograph, Dr. Stockton filled in the gap by calling on those present for incidents of practice.

Dr. C. A. Meeker announced that he had discovered that pulverized mica powder mixed with .044 phosphate made an excellent nonconducting medicine when inserted in a sensitive cavity of decay.

Dr. Le Roy, of New York, spoke of his use of a thin film of mica for carrying the formagen cement paste to position over a pulp and, of course, leaving it there, building the subsequent filling over the mica.

Dr. Dawbarn spoke enthusiastically of the new silver salt—argyrol—which is a black, coarsely grained powder and is marvelously active as an antiseptic, is non-irritating, non-poisonous. A saturated solution applied even to the eyelids produces no unpleasant effect and is highly beneficial. "One could drink it with safety."

The annual meeting of the New York State Dental Society occurs at Albany on the 13th and 14th of May. This will be a very interesting meeting. Among special features will be porcelain clinics by Dr. Head, of Philadelphia, and Dr. Land, of Detroit, Mich. We hope to give you a good report.

We spoke in our last letter of a society—the "Institute of Dental Technique,"—as being a new one here. We forgot that there was another new one, from which great things may be expected some time and of which we should have spoken in our last. We believe it is called the "East Side Dental Association." It is a society of which we desire to learn something and will then report to you.

It is composed of young, hard-working dentists, who are just beginning to practice in a portion of the city long since given over entirely to the advertising parlor dentist. These young gentlemen, born and brought up in the vicinity of the "Bowery," have attended full courses and graduated.

We were present for a little while at the April meeting of the "New York Institute of Dental Technique." This is a new society, composed of energetic and studious young men. They meet about 6 p. m., have a little dinner together, and then hold a meeting, at which some one is expected to tell them or show them how to do things. Dr. Charles Otis Kimball read a short paper, descriptive of his method of using soft foil, and then demonstrated the method on an extracted tooth. The members gathered around the table and an interesting and instructive clinic was had. THE BOROUGHS.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

Syringing the Mouth:—It took years to teach me that in syringing the mouth, the less one interferes with the free action of the muscles the less likely the water is to run out at the corners.

MARK G. MCELHINNEY, Ottawa, Canada.

Operate with Necessary Instruments Only:—Did you ever try to ascertain how few instruments you could perform an operation with? Try it. Kindness is a great economizer of time and distress. To know what to do and then do it is success.

C. R. TAYLOR, Streator, Ill.

Local Anaesthetic:—To half an ounce of a four per cent solution of cocaine add half an ounce of 1-1,000 solution of adrenalin chloride. I have performed all kinds of surgical operations about the mouth with the aid of the above and have always had the most pleasant results. J. NELSON PLATT, Gallup, N. M.

Sealing a Cavity With Cotton and Sandarac:—Cotton soaked in sandarac, if left in a cavity for several days, becomes very foul. If oil of cinnamon is added to the sandarac it will be much less objectionable. I often wonder why sandarac is not prepared in this way. HOMER ALMON.

To Make Worn Carborundum Wheels True:—Small carborundum wheels used with the dental engine very often wear "flat" They can be easily and quickly made round again by placing the mandrel, to which one is attached, in the hand-piece of the engine and holding it steadily, while the engine is running, against a large carborundum wheel mounted on the lathe and revolving rapidly in the opposite direction.

Be Ethical:—Recently I saw two advertisements from dentists, who are really not bad fellows, and yet they choose to exclude themselves from the company of decent men by resorting to that which not only lowers them in the estimation of truly professional men, but degrades dentistry in the eyes of the public. These men probably did not stop to think of the sweeping effect their methods would produce upon their own calling in later years, and it would be well for those whose minds are inclined in that direction to think of the result before resorting to such methods.

A. W. THORNTON, Chatham, Ont.

Save Your Worn Screw Mandrels:—The threads of the ordinary screw mandrels become worn very quickly. These old mandrels can be easily made useful for carrying carborundum wheels of various sizes by smearing sealing wax over the exposed end of the screw after the wheel has been placed upon it, and while the wax is hot forcing it into the socket of the mandrel with a strong screwdriver. The shank can be held in a vice or a pair of pliers while the screw is being forced into it and after the wax becomes cool it will be found to hold securely. Fibers of cotton wrapped around the screw will sometimes hold when the operator is in a hurry.

Guide for Restoring Facial Expression:—A lady patient, for instance, has been wearing full upper and lower dentures for some years. She is dissatisfied with her appearance and desires to have the correct facial expression restored. In such a case, without a guide, we can produce an expression which we think is correct and still be far from the right one. To follow the patient's directions and accomplish anything, it may safely be said to be impossible. A photo of the patient taken previous to the extraction of the teeth, if it can be procured, will be found a safe guide for the operator. Study the photo carefully and refer to it while constructing the case. It will assist in cultivating your idea of that which is artistic, and the result will please your patient.

OLIVER MARTIN, Ottawa, Canada.

Separating Teeth:—First remove debris—if a molar or bicuspid cut marginal ridge to permit this. Place waxed shoe-thread between the teeth and beyond the cavity. Fill the cavity with dry cotton using a serrated plugger and with firm pressure pack the cotton into the cavity. Tie the waxed ligature around the cotton as tight as possible and leave as long as is deemed necessary. If much separation is required repeat the operation in three or four days. This was suggested years ago and is the most humane, safe, effectual and easy method of separating teeth. Gutta percha is slow and in a large number of cases ineffectual. Rubber and wooden wedges are cruel devices and should be avoided.

W. C. Gowan, Creemore, Ont.

A Method of Tooth Restoration:—In cases where there is almost complete destruction of the crown of a molar, and the expense of a gold crown is beyond the means of the patient, I offer the following method for restoration: Grind down the walls of the crown to make sufficient space for a substantial cusp. Take an impression and bite with wax or modeling compound, and articulate. After separating build up the crown with plaster and carve the cusps to occlude properly, the same as for a gold crown. Take an impression of the occlusal surface in modeling compound, chill thoroughly and fill with amalgam. The amalgam must be allowed to set thoroughly, making a solid amalgam cusp. At the next sitting, enlarge the pulp-chamber with a large inverted cone bur in the right-angle hand-piece and fill with amalgam which is not too stiff. The amalgam should be built high enough to allow for a surplus when the cusp is in the correct relation. The base of the cusp, which should be made level with a file, is now smeared with soft amalgam and placed in position in the mouth, after which the patient is requested to close the teeth firmly upon it to force it to its proper position. The walls may now be finished with a smooth burnisher, and if quick-setting amalgam has been employed the result is a perfect occluding, solid, amalgam crown and one that will be serviceable. The amalgam can be polished at a future sitting.

W. A. Robertson, Crookston, Minn.

COLLEGE COMMENCEMENTS.

LINCOLN DENTAL COLLEGE, UNIVERSITY OF NEBRASKA.

Graduating Class—Mattie M. Davis, Daniel C. Dorwart, Alva Erwin Helfinstine, B. S., Walter E. Jack, Oliver K. Mapes, Ernest P. Stubbs, Joseph B. Troyer.

KANSAS CITY DENTAL COLLEGE.

Twenty-third Annual Commencement, April 30, 1904. Graduates—L. M. Bond, C. H. Brown, E. L. Burton, D. L Carney, C. E. Cox, E. J. Cutshaw, R. C. Davis, F. J. Finnigan, G. A. Hadley, C. B. Howard, H. E. Holiday, W. J. Huggins, F. Hyatt, E. W. Kerr, I. L. Lutz, E. L. Moore, G. V. McBeth, L. E. Rowley, H. A. Sager, M. D., W. R. Sanders, J. J. Settle, A. C. Simmons, J. H. Solecki, H. C. Stokes, E. S. Uhl, C. H. Van Deventer.

INDIANA DENTAL COLLEGE.

Graduates—James T. Anderson, A. J. Aughinbaugh, C. D. Bachelor, J. E. Barnfield, D. X. Beechler, J. H. Blind, Christian Bos, H. G. Boyd, C. L. Byers, B. F. Chapin, L. S. Chenoweth, W. R. Clickener, Anna H. Cluthe, B. A. Conrad, G. A. Craig, J. K. Cunningham, C. H. Dawson, Fletcher Day, C. O. Dobson, E. Donmyer, Theodore Douglas, C. M. Dowell, E. J. Dykeman, D. F. Ellison, E. L. Fee, D. B. Fenstermaker, Mary E. Fox, Robert Gillis, Roy Harris, Chase Hiatt, H. S. Hickman, C. L. Hinee, Louis Icerman, Otis La Grange, O. W. Langston, Huber Lowry, E. P. McClung, E. McElhaney, George F. Masters, O. H. Meyers, F. E. Morton, W. L. Myer, W. R. Newcomer, Norman Norris, E. R. Oberlin, George T. O'Dell, Clifford Ogle, P. J. Pentecost, B. D. Peterson, W. J. Phillips, E. D. Poffenberger, C. A. Priest, S. B. Roth, J. J. Schneider, R. B. Schrock, Margaret Shaw, R. G. Shaw, Joseph P. Shelly, E. B. Simmonds, G. E. Snyder, James W. Stearman, H. W. Stephenson, C. A. Study, R. L. Swindler, H. C. Tate, C. E. Thomson, J. A. Tillett, Floyd Traylor, Leonard Trinkle, E. C. Van der Volgen, Bert Vangilder, O. A. Van Kirk, Louis Van Swearingen, A. E. White, N. G. Wills, Ernest Winter, J. C. Wright, O. M. Young.

DENTAL DEPARTMENT MILWAUKEE MEDICAL COLLEGE.

Graduates—Ben Henry Boerger, Cora Josephine Bryant, Melton Oakley Bentley, Otis Verlin Calkins, Thomas Francis Dempsey, Otto Alfred Droegkamp, Earl Farrington Dodge, Homer Hicks Fowle, Samuel Diamond Friedman, Christian Garfield, Goelzer, Albert Frederick Hinz, James Martin Hackett, Frank Newell Hansen, Arthur Henry Hansen, Erle Seltzer Harrison, Carl Jonathan Hentschel, Walter George Heiliger, Frommhold Arno Holtz, Wilson Thurston Hurd Jr., Ernest John Hoermann, Henry Frederick Hennemann, Frank Lorell Joslin, Herbert Hugo Kreutzmann, Edwin Gustave Kohlsdorf, Otto Reynold Kloehn, Thomas Francis Kennedy, Morris Herman Lewin, Francis Sterling Lindow, Charles Robert Morgenroth, George Elmer Melchior, Oscar Frank Meng, William Henry Morris, Edward McCarten, James Mason Nelson, James David Nelson, Herman Ernst Pomrening, August Frederick Pomrening, Michael Ulrik Poppe, Anton George Rozmarynowski, Philip Charles Regan, Thomas Henry Roach, Roy Charles Rowley, William Frederick Straub, James Alexander Spalsbury, Edward Francis Stapleton, Frank Wilson Straight, Sterling Sacket, Charles Clarence Tuckwood, Bertram George Tainter, Frank Ezra Wing, Herman Henry Weickel, Ben Peter Weinand, Mabel Kathryn Young.

OHIO MEDICAL UNIVERSITY.

Graduates in Dentistry—Theodore Earl Axline, Wilson Ballard, George Edison Bell, Cline Switzer Beurman, Thura Leonard Bloom, Eugene Alexander Bobo, Chauncey Eugene Brooks, Arthur William Brown, Mary Alma Cady, Freeman Campbell, Otto White Cathers, Ray Burdell Church, Harry Kyle Cochrane, Alvin Arthur Constien, Samuel Bruce Crozier, Torrey S. Dickerson, Edward Leo Dunn, William Robert Dougan, Ward Adelmar Frame, Edward J. Frowine, Robert Bellows Gage, George Wallace Grant, Homer Daniel Grubb, Alva Ray Hengst, Peter Edward Hixson, Walter Leon Hogue, Luster Garfield Ice, James Emory Jackson, George Elmo Kalb, Samuel Marcellus Larrick, Edward Joseph Loesser, James Arthur Loughry, Pope Lemon Marshall, James Arthur Maxwell, Leroy Wilson Meek, Arthur Archer Meredith, Howard Phipps Michener, Claude Leyda Miller, William Henry Pelton, Leman Doston Pfouts, George Madison Raudabaugh, Caleb Matthew Sickles, George Homer Sipher, Chester Llewellyn Slyh, Dewey Duane Smith, Frank Aldrich Spencer, Edward Everett Sulsberger, Dessie Dell Thompson, Justus Martin Warren, Daniel Hudson Warren, D. D. S., George John Weber, Hermus Seward Welch, Frank Holland Williams, Carroll Agnew White, Chester Arthur White, Peter William Young, Daniel Webster Zeis.

MEMORANDA.

PAIN AFTER EXTRACTIONS.

To relieve the pain following the extraction of a tooth it is recommended to give the patient one Antikamnia and Codeine tablet before the operation and one after it.

BOARD OF DENTAL EXAMINERS OF PENNSYLVANIA.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 8-11, 1904. Applicants must address Hon. C. N. Schaeffer, secretary of the Dental Council, Harrisburg, for papers and further information.

THE DECLARATION OF INDEPENDENCE.

The Palisade Manufacturing Company, of Yonkers, N. Y., are mailing a copy of the above document to each dentist in the United States. It is intended for framing and is a beautiful piece of work. If any dentist has failed to receive a copy he may obtain it by addressing the company.

INAUGURATION OF THE NEW DEPARTMENT OF THE DENTAL SCHOOL OF PARIS.

Thanks to a generous donation the Dental School of Paris has established a dispensary for the treatment of the poor who have lost their teeth or suffered deformities of the mouth or jaws. This is an important movement on the part of our French confreres and we congratulate them on the inauguration of such a charity.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The Minnesota State Board of Dental Examiners will meet for the purpose of examining applicants for license June 13, 14 and 15, 1904.

No applications received after 12 m., June 13th. Meeting held at the dental department of the State University at Minneapolis.

C. H. Robinson, Secretary,
Wabasha, Minn.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners will hold their annual meeting in the Coliseum building, corner of Thirteenth and Olive streets, St. Louis, Mo., on the 25th, 26th and 27th of August, beginning promptly at 10 a. m. Telephone and telegraph offices in the building. Hotel accommodations will be secured for the members. Special railroad rates will be secured for the members in the East desiring to attend, trains leaving New York on the morning of the 23rd.

CHARLES A. MEEKER, D. D. S.,
Secretary and Treasurer.

THE GEORGIA STATE DENTAL SOCIETY.

The thirty-sixth annual meeting of the Georgia State Dental Society will be held in Athens, Ga., June 28, 29 and 30, 1904.

Arrangements are being made to make this the greatest convention ever held in Georgia. All ethical practitioners are cordially invited.

L. H. MCNEILL, A. M. JACKSON,
Corresponding Secretary. President.

BOARD OF DENTAL EXAMINERS, STATE OF COLORADO.

The regular semi-annual meeting of the Colorado State Board of Dental Examiners will be held in Denver June 7, 8 and 9, 1904.

The examination will be both theoretical and practical and applicants for the examination must be prepared to do such practical work as is required. All applications must be filed before June 7th. For particulars address,

M. S. FRASER, Secretary,
407 Mack Bldg., Denver, Colo.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice dentistry in Wisconsin will be held in Milwaukee at Hotel Pfister, June 1, 1904.

Application must be made to the secretary fifteen days before examination. Candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

J. J. WRIGHT, D. D. S.,
1218 Wells Bldg., Milwaukee, Wis. Secretary.

STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY, STATE OF NEW JERSEY.

The New Jersey State Board of Registration and Examination in Dentistry will hold their next examination in the theoretical branches in the assembly room of the State house at Trenton, N. J., on the 5th, 6th, and 7th of July. Sessions beginning promptly at 9 a. m. The practical work done in Newark. All applications must be in the hands of the secretary ten days prior to the examination. For information regarding the examination apply to the secretary, 29 Fulton street, Newark, N. J.

CHARLES A. MEEKER, Secretary and Treasurer.

NORTHERN OHIO DENTAL ASSOCIATION.

The forty-fifth annual meeting of the Northern Ohio Dental Association will be held in Cleveland, Tuesday, Wednesday and Thursday, June 7th, 8th, and 9th. The program is a strong one and will be of exceptional interest to the general profession. The motto for the year is the "Annihilation of Pain in Dentistry." Essayists and clinicians have been selected with this thought ever foremost. The best authorities and the most successful men in this line of work will be at this meeting. The members of the profession are cordially invited to attend. It is expected that we will have the largest attendance of any meeting held in this section of the country. You can not afford to miss it. Come.

W. G. EBERSOLE,
Corresponding Secretary.

MINNESOTA STATE DENTAL ASSOCIATION.

The twenty-first annual meeting of the Minnesota State Dental Association will be held in St. Paul on June 16th, 17th and 18th.

Dr. Capon, of Philadelphia, will read an essay and clinic on inlays. Other essayists and clinicians have been selected from the best operators in the Northwest.

All ethical dentists are invited to attend the meetings. Any further information will be cheerfully furnished by either of the undersigned.

J. O. Wells,
Chairman Executive Committee,
Masonic Temple, Minneapolis, Minn.

Geo. S. Todd,
Secretary,
Lake City, Minn.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The next annual meeting of the National Association of Dental Faculties will convene at 10 a. m., June 9, 1904, in Washington, D. C. The Executive Committee will be in session the afternoon of June 8th to consider such matters as may be brought before it. Arrangements are being made with the railroads for one and one-third fare on the certificate plan. The hotel as headquarters, together with the railroad rates, will be announced later by circular letters to the colleges.

Executive Committee,
H. B. Tileston, Chairman.
S. W. Foster, Secretary.

THE CHICAGO DENTAL SOCIETY.

List of officers of the Chicago Dental Society for 1904-1905, elected at the annual meeting, held in Schiller Hall, Tuesday evening, April 5, 1904:

President	Thomas L. Gilmer
First Vice-President	C. N. Thompson
Second Vice-President	F. V. Yorker
Recording Secretary	Winthrop Girling
Corresponding Secretary	A. E. Morey
Treasurer	C. P. Pruyn
Librarian	J. H. Woolley
Member Board of Directors	J. G. Reid
Board of Censors	C. N. Johnson, Chairman W. V-B. Ames A. W. Harlan

THE DAILY PRESS AND DENTISTRY.

It is encouraging to find an intelligent reference to dental topics in the daily press. Usually any mention of dentistry is coupled with stale wit and an attempt to be funny, but the following editorial in the *New York World* is in an entirely different vein, and shows a sense of appreciation of the real importance of the profession:

A DENTAL PATRIARCH.

The death at the advanced age of ninety-six of Dr. Otis Avery, for seventy years a practicing dentist, will attract more than ordinary notice because his career spanned the history of the development of dentistry in America.

Dr. Avery is believed to have received the first certificate of proficiency ever given a dentist in this country. That was in 1833, six years before the institution of the Baltimore Dental College, the first in the world.

Gold fillings have been found in the teeth of Egyptian mummies and false teeth in prehistoric Etruscan graves. Perhaps the Pharaohs knew the feeling of the forceps. But it was in this country that dental work was first advanced to a science. Its most improved instruments are of American invention. The use of anæsthetics is an American discovery. Bridge-work is an American idea, and the artificial tooth indistinguishable from the real is the product of American skill.

A dentist must now know as much as a doctor used to know. His diploma certifies to a grounding in anatomy, histology, embryology, physiology, pathological chemistry, bacteriology, surgery, neurology, the materia medica and therapeutics, in addition to proficiency in operative dentistry and in metallurgy. His contribution to the health of the community is but secondary to that of the physician.

For the diseased tooth is the source of woes unnumbered and its proper care has become in part responsible for the greater average length of life we enjoy over our ancestors.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

755,670. Dental impression tray, Christos Joannidi, Constantinople, Turkey.

756,138. Toothbrush attachment, Arnold A. Petersen, Muscatine, Iowa.

756,336. Dental handpiece, Lyter H. Crawford, Dallas, Tex.

756,506. Dental tooth crown, William N. Kidder, Providence, R. I.

756,250. Washbowl or spittoon, Lester F. Lerchner, Charlottenburg, Germany.

757,133. Holder for dental bite-takers, Edmund B. Marshall, Rome, Ga.

36,878. Design, dental tool handle, Carl H. Seeger, Manitowoc, Wis.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

UNIVERSAL EXPOSITION FOURTH INTERNATIONAL DENTAL CONGRESS.

David R. Francis, President; Howard J. Rogers, Director of Congresses.

Committee of Organization—H. J. Burkhart, Chairman, E. C. Kirk, Secretary, Lock Box 1615, Philadelphia.

Local Committee of Arrangements—William Conrad, Chairman; Sam T. Bassett, Secretary, 457 Century Building, St. Louis.

St. Louis, August 29 to September 3, 1904.

We, the Committee on Local Information, submit the following facts, important for the success of the Fourth International Dental Congress:

Every member of the profession who has at heart the welfare of dentistry should give it support, financially and by action.

We, as American members of the dental profession, would well keep in mind that the Congress will be held in our great country, and pride should prompt us to action to make the meeting one of great magnitude and far excelling its predecessors.

Let every dentist take hold with a will and push it to a successful issue.

This Congress should be of great interest to all of the profession. There is planned a monster clinic from the best clinicians of the world, scientific papers from the pens of the most noted and scholarly men of the profession, and an exhibit to excel all others.

The meetings, the section meetings, the clinics and the exhibits will be held in the great Coliseum, where ample accommodations are secured.

Hotel Jefferson, the general headquarters of the Dental Congress, is one of the most fashionable and complete hotels in the West, if not in America, and is located on Twelfth street, one block from the Coliseum. Hotels of St. Louis will be sufficient to meet all requirements.

The Information Bureau of the Exposition has a list of ninety-seven well-established hotels now doing business in St. Louis, with a capacity of 41,000 guests, at prices ranging from fifty cents a day up on the European plan, and from one dollar a day up on the American plan. These established hotels have been supplemented during the year 1903 by thirty-five new permanent hotels now opening, or about to open, increasing the permanent hotel capacity to 67,000 guests, at prices ranging from one dollar a day up. The Exposition management holds the signed agreement of the leading hotels that "Rates shall not be increased during the World's Fair period." Prices are now lower in St. Louis than in any other city for similar hotel accommodations and service.

The Exposition Information Bureau's list of 132 permanent hotels includes only the better class. There are now 173 hotels, large and small, in operation in the city, and the new hotel enterprises being inaugurated justify the belief that the number will reach 250 before the opening day of the World's Fair.

Besides hotels with accommodations for more than 200,000 guests, the Exposition Information Bureau has a list of boarding houses and rooming houses of respectable character, on the street car lines, with lodgings for 65,000 guests, and a list of private houses that will let rooms for 20,000 persons.

All over the city, apartment houses and rooming houses are available for those who prefer rooms away from crowds, with meals at the restaurants.

There are 485 restaurants in St. Louis that have a national reputation for good fare, good service, cleanliness and moderate prices. Twenty of these 485 restaurants can take care of 40,000 patrons.

The climate of St. Louis is temperate in summer and most delightful in the spring and fall. It is the most central and accessible of the four large cities of the United States, twenty-seven railways entering it, and passenger steamers on the Mississippi reaching it from north and south.

World's Fair cheap rates on railways and steamboats will be offered during the whole Exposition season, as follows:

RATES ADOPTED BY THE FOLLOWING ASSOCIATIONS.

New England Passenger Association, Trunk Line Association, Central Passenger Association, and the Southeastern Passenger Association.

Tickets will be on sale from April 15th.

Season tickets for eighty per cent of double one fare, good to return until December 15th.

For sixty days, one and one-third fares, not good to return after December 15th.

For ten days, one fare, plus $2.00, from points within two hundred and fifty (250) miles of St. Louis.

For fifteen days, one fare, plus $2.00, from points over two hundred and fifty miles from St. Louis.

St. Louis is the fourth city of the United States in point of population, having 750,000 people. Certainly no city is more attractive with interest for the student of nature, science, history, etc. There are twenty-four public parks, containing over 2,100 acres, all well improved.

The World's Fair grounds lie five miles from the river, on the western edge of the city, and are reached quickly and comfortably by steam railway and fast trolley lines.

The visitors reach the city through the largest and most beautiful railway station in the world. Thirty-two tracks run into the station side by side, and the midway, or glass-roofed hall in front of the gates to the trains, will hold 30,000 people. Most of the hotels, except those temporary ones near the World's Fair grounds, are within ten minutes' ride of the station, in the heart of the business district. Street cars, reaching all of the hotels for one fare, pass the station and the cab, carriage and baggage system is excellent.

The great Music Hall and Coliseum building that is secured for the meetings of the International Dental Congress is downtown, on Olive street, between Thirteenth and Fourteenth streets, within easy walking distance of Union Station, the hotels and the business district. It has a seating capacity for 8,000 people, with section rooms that will be arranged for the various committees and exhibitors.

Naturally, every member attending the Fourth International Dental Congress will wish to see the World's Fair. This will be the most magnificent the world has ever seen, and it will probably be the last great exposition to be held in this country for many years, because of the enormous expenditure of labor and money attending it.

Congressman Bartholdt, in a recent speech made before Congress, said: "The universal Exposition at St. Louis is the apotheosis of centuries of civilization. It is the culminating perfection of those wonderful international spectacles which have served to impress on our minds that it is good to be a living participant in the glories of this world.

"A decade of human achievement has elapsed since the Columbian pageantry of progress at Chicago. Every American who saw the 'White City' thrilled with the thought that the nations of the earth had assembled in the greatest republic to do homage to the genius of enlightenment.

"Triumphs of the emperors of imperial Rome were but the mock pomp of childish fancies compared to the triumphs of peace as celebrated by such a labor of love at St. Louis. On the May Day of this year the gates of welcome will be flung wide open and the vision of the century will then unfold its prophetic beauty for the uplifting of humanity.

"All in all, the Universal Exposition of 1904 will be the sensational climax of the twentieth century, the grandest victory of peace and civilization, the greatest triumph human genius has yet achieved. To millions of its visitors it will be an academy of learning, an inspiration and an inexhaustible source of genuine delight, and the memories of the 'Ivory City' will live and bear fruit in ages yet to come."

We appeal to all reputable, legally qualified practitioners of dentistry to interest themselves in the success of this great international meeting.

Let every dentist in America put forth his greatest effort to advance the cause. Make application at once through your State chairman for a membership certificate. See that your fellow practitioner is enrolled, and then, and not till then, will you have done your full duty.

The membership fee to the Congress will be $10.00. It will entitle the holder to the official badge and all the rights and privileges of the Congress. He will also receive one copy of the transactions. Without a membership certificate it will be impossible to get into the general meetings, sections or clinics, or attend any of the various entertainments given during the Congress.

This great Congress presents to the American dentist an opportunity to see and hear the brightest and most learned men of the profession from all parts of the world, men of international reputation that shine as clinicians, and men of great renown of the inventive turn of mind. This international meeting will be the Mecca of the profession of the world. We will all receive new light and be stimulated to a higher appreciation of our noble profession.

The local Committee of Arrangements and Reception, with its various minor committees, is working with increasing energy and will be ready to meet you and extend you a most hearty welcome.

Any further information can be obtained from the Committee.

D. O. M. LeCron, Chairman, Missouri Trust Bldg.,
Max Fendler, Secretary, Missouri Trust Bldg.,
George H. Gibson,
H. F. D'Oench,
G. L. Kitchen,
S. H. Voyles,
Orem H. Manhard,
Joseph G. Pfaff,
Permanent Local Committee and Bureau of Information.

OBITUARY.

DR. EDGAR DENMAN SWAIN.

On Thursday morning, April 28th, Dr. Swain was stricken with apoplexy and died the same day. He will be sincerely mourned by the dental profession, by his comrades of the Loyal Legion and the Grand Army of the Republic and by hosts of friends who respected and loved him, for it is the privilege of only a few to live so useful a life, to command such universal respect for ability, integrity and sound judgment and to win so warm affection of intimate associates and friends. He was born in Vermont, August 14, 1836. He studied dentistry with Dr. Carpenter in Saratoga Springs and came to Batavia, Ill., in 1859. He raised a company and went to the war of the rebellion as captain in the summer of 1861, his regiment being the Forty-second Illinois. He was made lieutenant colonel and commanded the regiment during the later years of the war, the colonel being absent from the regiment on other duty. He continued in service longer than most of the volunteers, being in General Sheridan's command in Texas during the summer and autumn after the close of the war and was mustered out in January, 1866. He served long and well in the First Regiment Illinois National Guard, the last part of the time as its colonel. He did much work and received the high honor of Senior Vice-Commander in Chief in the Grand Army of the Republic, and rendered important services as a member of the commission from Illinois to locate and suitably mark the positions of Illinois regiments in the battles of the Chicamauga and Chattanooga campaigns. This last has only recently been completed.

In the profession of dentistry his usefulness and his honors have been equally conspicuous. Soon after coming to Chicago to practice (after the close of the war), he identified himself with the group of faithful men who maintained the Chicago Dental Society and the Illinois State Dental Society for thirty years or more and he filled at various times every position of responsibility or of honor which either of them had to bestow, and his name was scarcely ever absent from their lists of officers or committees. At the time of his death he was chairman of the committee on infractions of the code of ethics of the State Society. He received many years ago the honorary degree of D. D. S. from the Ohio College of Dental Surgery. He helped to organize the Chicago Dental Infirmary, which soon became the Chicago College of Dental Surgery, and served for some years as its secretary and treasurer. He was one of the group of men who in 1891 organized the present Northwestern University Dental School and was seven years dean of its faculty.

Some years ago severe and increasingly frequent attacks of rheumatism forced him to retire from practice and he went to Seneca Falls, N. Y., and engaged in out of door employment, raising poultry, fruits, etc. This enterprise had to be given up because his wife became a helpless invalid from the effects of a stroke of paralysis, and they removed to Batavia, Ill. During the period of more active out of door life Dr. Swain entirely recovered and appeared to regard himself, and was thought by his friends to be in excellent health. He had resumed the practice of dentistry in Batavia. His sudden death has therefore come with a great shock of surprise and grief to his host of friends. His place in the affections of his comrades and professional associates can never be filled. E. N.

DR. JOSEPH F. BAIRD.

Dr. Joseph F. Baird died at his home in Joliet, Ill., Tuesday, April 5, 1904, after a two weeks illness, typhoid fever with complications being the immediate cause of his death.

Dr. Baird was born in Adamsville, Pa., October 29, 1867, to which place his remains were taken for interment. He leaves an invalid wife, a son eight years of age, an aged father, one sister and one brother to mourn. He was a graduate of the Northwestern University Dental School, a member of the Illinois State Dental Society, a respected member of his profession and of the community in which he lived. The dentists of Joliet sent a beautiful floral tribute and accompanied the remains to the railway station in a body. S. F. DUNCAN.

THE

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ORIGINAL COMMUNICATIONS.

LIMITATIONS OF EXTENSION FOR PREVENTION.*

BY G. V. BLACK, M. D., D. D. S., SC. D., LL. D.,
CHICAGO, ILL.

In my articles in the *Dental Cosmos* in 1891 on the "Management of Enamel Margins," following a statement of the general principles of extension for prevention, I said: "It is along these lines of thought and practice, together with greater attention to the forms of the interproximate space and the proximate contact, that the greatest improvement in filling teeth is likely to occur in the near future." (*Cosmos,* 1891, p. 94.) Within the space of twelve years this has been, in a large degree, realized; not perfectly by all, even to the standard then announced. Indeed, there are yet those who stoutly contend that they see nothing good in the principle of "extension for prevention." I notice, however, in published accounts and in observing operations at clinics, and in the examination, as opportunity has offered, of fillings that even these persons have made in their office practice that they are preparing their cavities more and more nearly upon these lines. It has been freely said, also, that this was nothing new, that others had been practicing the same thing. I certainly made no claim in 1891 that the methods then announced were original with me. I recognized then, as I do now, that there were a few men who were preparing cavities on somewhat similar lines, but an examination of the literature fails to reveal that any one had announced in any distinct way the general principles to be followed, with the reasons that should govern the procedure. The form of expression seems to have been peculiarly fortunate, as it has caught the eye of many men, been often repeated, and so has led to a closer inquiry as to the meaning intended.

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*Read before the G. V. Black Dental Club (Inc.), St. Paul, Minn., February, 1904.

The sentences immediately following the words quoted above shows my thoughts as to the prevailing practice at the time: "A large proportion of operators have approached perfection quite closely in the manipulation of gold, or the building of fillings, from the standpoint of the handling of the filling material. But in arriving at this they seem not to have studied sufficiently the future liabilities of their cases to caries; particularly as to the regions of the enamel most exposed to caries, and which might be included within the area of the present filling. The form of the interproximate space and the form of the proximate contact best calculated to prevent the leakage of food into the space during mastication, have not received sufficient study. These several points require, for their best solution, the concentrated attention of the profession for a number of years to come."

This fairly represents the grasp of these points of difficulty in filling teeth that I had and was able to present at that time. The forms of proximal contact best calculated to preserve the soft tissues that normally fill the interproximal space was much more fully described in later writings. The form of anchorage by cutting steps into the occlusal surfaces of the bicuspids and molars was more fully expressed in my paper before the Illinois State Dental Society in 1893 (see also DENTAL REVIEW, 1893, p. 429). and at this time the physical force used in mastication began to be more closely studied. Dr. C. N. Johnson has done much to forward this work; this Club has done great work in giving it increased impetus, and many others have taken up the thought until the use of the term "extension for prevention" has become so frequent in our literature as to attract the attention of all. In this use of the term it would be surprising if many things had not become attached to it that do not properly belong there, both of things that are good and necessary as improvements in filling teeth and things calculated to bring reproach.

The use of the expression "extension for prevention" should be limited to its original meaning, which was quite clearly defined in my papers of 1891, first on pages 92, 93 and 94, *Cosmos*, and illustrated and further described in the pages which follow. A re-reading of this shows that the analysis was fairly closely made and that the call for extension is very variable and dependent upon conditions found to exist, which were determined by a study of the areas of superficial corrosion of the enamel about cavities of decay in any of the smooth surfaces of the teeth. Extension of cavities upon the occlusal surfaces of the molars so as to include all deep grooves for the purpose of finding a point where a smooth finish could be made was alluded to as an example of extension for prevention that had been practically accomplished by the better practitioners. (*Cosmos,* 1891, p. 92.) But in this instance the extension is made for the purpose of finding a point where a finish can be made without leaving a rough point, or pit, where the filling ends along the line of a groove rather than because of fear that decay would occur in the groove if this rough point could be avoided. It is pointed out that none of the parts of occlusal surfaces that are smooth enough to shed off lodgments are liable to decay.

The extension upon smooth surfaces of the teeth is required from a very different standpoint or view of the conditions. In these the tendency of the spread of decay superficially upon the surface of smooth enamel is the subject of study. There are no physical markings of the surface itself, aside from the markings made by corrosion of the enamel, that guide the operator in selecting the lines to which extension should be made. These marks of corrosion become the subject of careful study as mapping out the areas of liability to future decay, and the advice is that they be included within the lines of the enamel margins when the cavity is prepared. When reduced to its simplest expression, the liability of teeth to caries is confined to three points upon their surfaces:

First.—Pits and grooves, fissures, or imperfect closures of the enamel plates. These are mostly upon occlusal surfaces, but their treatment is fundamentally the same wherever they are found, for all of them are on surfaces that are worn in mastication. If there are exceptions, they are so infrequent as to prove the rule.

Second.—Proximal surfaces.

Third.—Buccal or labial surfaces. (Lingual surfaces decay so rarely that they may be regarded as exceptions to the rule.)

This leaves but two classes of smooth surfaces to which extension for prevention refers, and of the two the buccal and labial surfaces are the simplest, because they are best exposed to view and to careful study. In these the rule is to clean the surfaces and study the area of superficial corrosion of the enamel, note the directions in which it is extending, and then so prepare the cavity as to include this area, with such extensions beyond it as the conditions may point out as being necessary to prevent further corrosion, which means a re-beginning of decay at the margins of the filling. This is done not only in the light of the information gained by the study of this individual instance of caries beginning upon one of these surfaces, but rather in the light given by the operator's whole experience in the study of decays upon similar surfaces; taking into consideration the age of the patient, the surrounding conditions and the apparent intensity of the susceptibility of the patient to caries. In caries of proximal surfaces the case is intrinsically the same, and the same studies of the extent of superficial corrosion of the enamel surface to be made, the same signs should control the judgment of the operator. But in this case we have the complication of the near approach of the proximating surface of the tooth mesial or distal to the surface studied, and its influence in favoring lodgments of debris and micro-organisms with consequent fermentation that will tend to extend the corrosion. In this case experience has shown conclusively that the very near approach of the lines of enamel margins to contact with the proximating tooth becomes a special point of danger. This is to be guarded against by extending the cavity so far out into the embrasures between the teeth that the line of the enamel margin will be kept clean by the excursions of food in chewing. Especially is this to be guarded by liberal extension at the linguo-gingival and bucco-gingival angles of the cavity, while the gingival enamel margin should be covered by the free margin of the gum when completed and the gum septum has returned to its normal position.

Extensions in other directions than these and for other purposes have nothing to do with "extension for prevention." It is often necessary to cut much further because of extension of decay in the dentin which has undermined and weakened the enamel, but this is not "extension for prevention" and has no relation to it. It is generally necessary to extend proximal cavities in the bicuspids and molars into the occlusal in the form of a step, but this is for anchorage and not in any sense "extension for prevention." It is necessary in proximal cavities in the bicuspids and molars to cut cavities broadly to the occlusal surface, but this is for proper convenience in placing the filling and not in any sense "extension for prevention."

Then "extension for prevention" means the following up of corrosion of the surface of the enamel and such extension as may be required to include such marks of corrosion, together with such extension beyond such corrosion as may apparently be required by conditions present in the particular case. It has only an incidental relation to the other elements of cavity preparation mentioned above and should not be included with them, nor confounded with them. Very many of the proximal cavities that we fill have already become so large from the burrowing of decay within the dentin that when overhanging and unsupported enamel has been cut away the necessary and proper limits of "extension for prevention" have already been much overstepped. To these it may properly be said that "extension for prevention" has no application whatever. But the other elements of cavity preparation, such as the squaring out of angles, producing a flat, horizontal gingival wall, a well formed occlusal step for a good and safe anchorage, do apply with their full force.

By what is extension for prevention limited, and what are the reasons for such limitation?

The angles of the teeth stretching from occlusal to gingival, the mesio-buccal (or labial), the disto-buccal (or labial), the mesio-lingual and the disto-lingual line angles are the lines upon the axial or smooth surfaces of the teeth upon or near which decay occurs least frequently. The rule is that these lines are immune to caries. Hence, as the lines of enamel margins approach these angles of the teeth, they approach lines of safety. Whenever they overstep these lines they have overstepped the lines of safety and have approachel areas of increased danger. This is especially true on all buccal and labial surfaces. This constitutes a limitation that in the ordinary sense is absolute and should be overstepped only in cases of necessity, because of extension of decay in the dentin which makes the breaking away of unsupported enamel a necessity. Therefore, any cutting over these lines onto the labial surfaces of incisors, or the buccal surfaces of bicuspids or molars, making fillings that are in bad taste from the æsthetic point of view, are oversteppings of the rules of "extension for prevention."

On this point I have recently been making some important observations, which my superintendence of a large school clinic enables me to do as no other opportunities can. My examiner, who receives all patients and makes the examinations for caries before the assignment of patients to students, has been carefully instructed to note every case in which superficial decay of the enamel has spread from any one or more surfaces to or past one of these angles, or where two decays, the one beginning upon a proximal and the other upon a buccal or labial surface, have so spread superficially as to connect over one or more of these angles. The examinations of separate individuals applying because of caries of the teeth have run from forty to eighty per day, numbering since this examination began about eight thousand patients, or an average of twenty patients each for four hundred students. For fear that in the rapid examinations necessary in the handling of so many persons some cases might be overlooked, both students and demonstrators have been instructed to call my personal attention to every case of the kind coming under their observation. All of these have been strongly impressed with this as a study of the conditions presented defining the usefulness of extension for prevention and its natural and necessary limitations, and have been actively interested in the watch for this class of cases. Although my personal observation in a long practice had prepared me to state that they would not find many, I was hardly prepared for the actual results. Among patients under thirty years old I can count all of the cases on the fingers of one hand. The larger number of cases found have been in old people in whom the free margins of the gum had shrunken to the limit of the attachment at the gingival line and in whom senile decay had occurred, more or less completely girdling the teeth.

While such results as these serve to establish the rarity of the spreading of decay superficially over the angles of the teeth, they must not be taken too literally. It is not infrequent that such things come to us in groups of either unusual numbers above an average or below an average of what might be shown by years of such observations. I have seen fractures of the lower jaw come in groups and then be absent for many years together. The same has been true of odontomes. One year our clinic gave four of these in close succession. Such things seem to run in epidemics.

This year we may have had an epidemic of the absence of the cases looked for, and certainly the better the care of the teeth in any community the scarcer will these cases be. They can not occur except through gross carelessness. Be this as it may, these observations, to my mind, serve to powerfully increase the former estimate of the value of the angles of the teeth as the limiting lines of the spreading of superficial caries upon the surface of the enamel, and in proportion increase the former estimate of the value of laying the enamel margins of cavities near these lines in all cases of intense susceptibility to caries presented in the mouths of young people. The cases in which this line is passed in senile decay, or the very bad condition of the body fluids, including the saliva, which Dr. Michaels has called the caco-chemic state of old age, should not be considered in this connection; for nothing we may be able to do in filling teeth for the young people coming under our care can be expected to guard them against this danger of old age.

Then let us limit the use of the term "extension for prevention" to its proper signification and employ it for the purposes intended, and when the conditions of the case in hand require that we cut beyond the limits of greatest safety, let us do it rigidly and for the purposes intended, i. e., proper strength of enamel margins, but do not call this "extension for prevention."

At the same time we must not forget that in these large cavities there may be points of extension for prevention to be made even in them near the gum margin to the buccal or to the lingual to place them in the best condition to resist future attacks of caries. All such should be rigidly made.

SOME OF THE CAUSES WHICH LEAD TO FAILURE OF FILLINGS.*

BY C. N. JOHNSON, L. D. S., D. D. S., CHICAGO, ILL.

It is not intended in the present paper to cover all of the factors which lead to failure in filling teeth, but to emphasize some of the more important ones, and to give a suggestion here and there as to how these failures may be avoided. By this it is not intimated that it is possible in all cases to avoid failure. In filling teeth we are hedged about by various limitations, to overcome all of which would border on the miraculous, and yet a clear conception of the conditions which lead to failure and an intelligent application of the principles best calculated to prevent it will place us in a more enlightened relationship to the matter and enable us to avoid many of the more common forms of failure which day by day confront us on every hand. If we do not carefully study the causes of failures we are not likely to make much progress toward their elimination.

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*Read before the G. V. Black Dental Club of St. Paul, Minn., February 19, 1904.

The first consideration naturally relates to the preparation of the cavity, and the initial step in this procedure is to establish the cavity outline. With proximal cavities there is a well defined principle involved which needs no reiteration at my hands before this Society, a principle which is to be discussed in detail for your benefit by Dr. Black at this meeting. But to round out the subject of my paper, I will simply state that in the clinical observation of the manifestations of decay in proximal surfaces it is found that there is a certain area of these surfaces which is more subject to the attack of caries than any other areas of enamel lying adjacent thereto, and the nearer we extend the outline of the cavity to the angles joining the proximal surface with the other axial surfaces of the tooth the more certain we are to avoid a failure through recurrence of decay around what may otherwise be a perfect filling. In other words, the line between filling and tooth should be placed at a point where it is habitually wiped clean by friction in the natural processes occurring in the mouth.

In this connection it may be well to make one admission. It is not contended that every case of recurrent caries around a proximal filling is due to lack of extension of the cavity outline. We may have failure of these fillings from various causes, such as defective enamel margins, imperfectly placed filling material, imperfect contour, imperfect finish, etc., but when we find failure, as we frequently do, along the buccal and lingual margins of fillings, in which all of the other requisites of a perfect operation are present, then we have a right to assume that the failure is due not to faulty manipulation, but to faulty environment. And it is this environment which we want to change by a proper cavity outline.

In considering outline on the occlusal surfaces, we have to deal with the question of fissures in the enamel leading from the cavity. Unless the cavity is extended to include all fissures radiating therefrom, an element of danger is left at the intersection of the fissure with the filling. and many fillings have failed from this cause.

In preparing cavities, the question of anchorage becomes an important consideration in guarding against failure. Fillings frequently fail by being forced out of the cavity under the stress of mastication when the anchorage form is not such as to hold the filling mechanically in position. To avoid detail it is sufficient merely to state that fillings anchored upon flat walls will sustain greater stress without movement than when anchored upon curved walls, and that the area of the seat of the filling should be proportionate to the amount of resistance it is expected to withstand. An inadequate resistance area will result in the filling moving slightly under stress even if it is not entirely dislodged, and this movement will soon lead to a leak around the filling, which invites failure. In line with this idea all seat walls, which are calculated to receive stress, should be placed as nearly as possible at right angles to the direction in which the stress is applied. Example: the gingival wall of proximo-occlusal cavities should be horizontal and flat instead of concave.

Another requisite for permanence is that fillings shall have sufficient bulk for strength, particularly at points which are subjected to heavy strain. In cutting a proximo-occlusal cavity, the step should be made deep and wide enough to give appreciable bulk of filling material at the point where the proximal portion joins the occlusal portion, otherwise the filling may break at this point, allowing the proximal half of the filling to tip away from the cavity and admit a leak.

A source of failure in filling teeth which is often ignored relates to the practice of leaving appreciable masses of decalcified dentine in the interior of cavities with the idea of protecting the pulp. This practice was advocated some years ago and was all the more readily adopted because of the discomfort sometimes encountered in a thorough removal of all softened tissue, and in the frequent danger of exposing the pulp. But this decalcified mass is a menace to the success of a filling in two important particulars. From the very nature of it, it is saturated with poisonous matter, and no amount of medication can entirely eradicate this if the mass is at all extensive. The effect of sealing this poisonous material close to the pulp is frequently to subject the pulp to a long lingering death even in those cases where it is not immediately overwhelmed and destroyed.

Another objection to leaving much of this decalcified tissue is the ever ready invitation to a recurrence of decay. With this under a filling the slightest leak around the margins will at once lead to a rapid undermining of the filling, and a complete collapse of the filling and walls of the cavity. Not only this, but the softened tissue is a constant invitation to sensitiveness in a filled tooth, and the ostensible object of leaving it is thereby frequently defeated. It should be the rule in cavity preparation to remove every particle of softened tissue in all cases where its removal will not cause actual pulp exposure, and in those cases where an appreciable mass of badly infected tissue surrounds a horn of the pulp it had better be removed even at the expense of a slight exposure. The pulp will stand a bettter chance of life and comfort under the protection of an antiseptic pulp-capping than when enveloped by so much infected dentine.

The next consideration in cavity preparation to avoid failure is the proper management of enamel margins. The enamel is composed of rods or prisms, which, in a general way, stand with their ends on the dentine and radiate outward. If the enamel margin is so shaped around a cavity that the peripheral ends of the rods are left unsupported it is only a short time before the margins will crumble away, leaving a defect between the enamel and filling, followed by a subsequent leak. To avoid this form of failure, all enamel should be so shaped that it is perfectly supported by dentine or protected by filling material—the degree of bevel for this purpose being regulated by the particular locality of the cavity outline and the consequent direction of the enamel rods, and also the probable extent of wear against this particular part of the margin.

If the foregoing precautions are taken in the preparation of the cavity, the chief essentials in guarding against failure may be said to have been attained so far as this part of the operation is concerned, and the next consideration relates to the insertion of the filling material. It may be said in passing that the use of an unstable intermediate between the filling and the cavity is a more fruitful source of failure than the profession seems to realize. In very deep cavities, where the pulp is nearly exposed and it is undesirable to introduce a metal filling so near the pulp, it is a wise precaution to insert a lining in the deeper portions of the cavity before placing the metal. This lining should, of course, be as nearly as possible a non-conductor of thermal changes, and this has led many operators to the use of gutta percha for this purpose. Gutta percha, from its very nature, is not sufficiently stable or rigid to furnish a suitable foundation upon which to build a filling, and the fact that it will yield slightly under pressure is a ready explanation of many of the failures we find around fillings anchored upon it. The slightest compression of the gutta percha results in a movement of the metal filling covering it, and this leads to leakage and general insecurity. A more suitable intermediate is found in the oxyphosphate of zinc, which, though not so perfect a non-conductor as gutta percha when once set, presents a more rigid base and is not so compressible.

In the insertion of a metal filling one of the most fruitful sources of failure is imperfect adaptation of the filling material to the cavity walls. Unless a cavity is perfectly sealed it can not be considered safe, and with metal fillings, whether of gold, tin or amalgam, an intelligent application of force must govern the insertion of the material, else a leak will jeopardize the success of the filling. The fallacy that amalgam may be plastered into a cavity without applicable force, and the resultant operation perfectly exclude moisture from the cavity walls, has led to many failures with this material, as has also the attempt to employ cohesive gold throughout an entire filling in regions where, on account of difficulty of accessibility, non-cohesive gold might with equal care have more certainly and securely sealed the cavity against leakage. The character of force and the manner of applying it for the hermetical sealing of cavities in the insertion of metal fillings is a study of great importance, and one which, if conscientiously carried out by the profession, would tend to reduce very materially the number of failures in our filling operations.

In line with this study comes the question of perfect density to our fillings—the avoidance of air spaces throughout the structure of the filling. While this is not so prominent a source of failure as is imperfect adaptation, yet it is a very important factor governing the ultimate success of a filling. These air spaces lead inevitably to disintegration, and while we do occasionally see some very ragged looking fillings preserving the teeth for years on account of good adaptation to walls, yet a partially disintegrated filling can never be considered safe from general collapse. The avoidance of air spaces in building up a filling relates to the proper placing of the different layers as the filling is under construction, and to the requisite degree of force and the manner of applying it in condensing the material. This is true of amalgam as well as of gold, though the danger of leaving air spaces in the latter is, of course, greater than in the former.

In making proximal fillings a very prevalent source of failure is traceable to the imperfect form that is sometimes given these fillings. The normal form of the teeth on the proximal surfaces is such that with ordinary care food may be kept from lodging between the teeth and remaining there for any length of time. This is attained by a rounded form to this surface with a small and rather prominent contact point, which refuses to hold fibers of food when they are forced between the proximal surfaces in mastication. In the making of fillings they are frequently not sufficiently contoured to reproduce this small rounded contact, and the result is a more or less broad and flattened surface, which invites the lodgment and retention of food in the interproximal space. This retention of food is not only a source of great discomfort to the patient, but it also inevitably leads to recurrence of decay around the filling, besides forcing the gum from the interproximal space and creating a pocket between the teeth, which is frequently the forerunner of disease of the peridental membrane. No matter how perfectly a cavity may be prepared and the filling adapted and condensed, the operation must be considered a failure unless the proximal surface is so contoured that perfect protection is afforded the gum septum, and the retention of food is prevented.

One further source of failure is to be found in the imperfect finish which is sometimes given a filling, particularly in the gingival region of proximal fillings. In the insertion of these fillings it is necessary to overlap the enamel margins somewhat with the material to be assured of adequately covering the margins, and the failure to remove this surplus material and trim the filling to a perfectly symmetrical outline with the surface of the tooth leads to a ledge being left around the filling which catches and holds foreign material to decompose and start fresh decay. Not only this, but the overlapping filling material being more or less uneven and rough, is a constant source of irritation to the gum, which can never cover the gingival margin of such a filling in a healthy condition. With a filling properly contoured and perfectly finished, the gum septum in the interproximal space will overlap this portion of the filling, a desideratum much to be sought after in the avoidance of future failure in this region.

REPORT OF THE DEMONSTRATOR OF OPERATIVE DENTISTRY OF THE G. V. BLACK DENTAL CLUB (INC.) OF ST. PAUL FOR THE FEBRUARY (1904) MEETING.

BY E. K. WEDELSTAEDT, DEMONSTRATOR.

Mr. President and Gentlemen: For several months reports have been made regarding different conditions which led to the failure of dental operations. You have fully considered and discussed failures where gold and tin in combination have been used; your attention has been called to the harm which follows the washing out of cement around gold crowns and porcelain inlay fillings; you have also had casts of conditions which have fully illustrated failure where tin or amalgam have been used in combination with gold in the same cavity. You have had an exact copy of these conditions presented for your consideration in the form of plaster of paris casts which fully illustrated all these different conditions. I have at all times dealt with the conditions themselves and not with theories.

To day I come to you with another class of failures. In illustration, Fig. 1, you have a reproduction of the conditions as they are represented here in this plaster of paris cast. That upper right first bicuspid contained three gold fillings, i. e., a filling in the mesio-occlusal surface, another in the disto-occlusal surface, and the third in the occlusal surface to the lingual of the buccal cusp. The fillings in

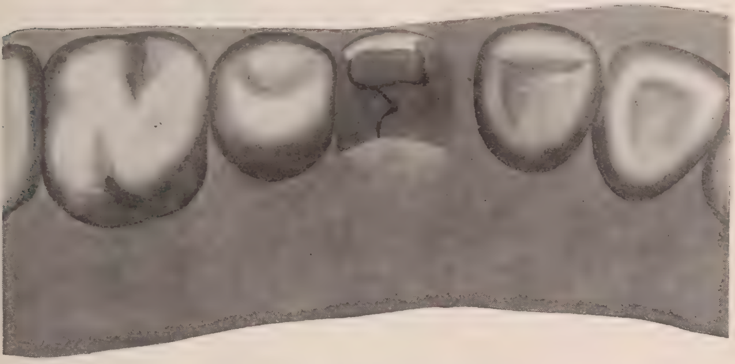

FIG. 1.

the occlusal surface rested one against the other. They were not joined as they should have been, nor was the cavity extended so as to protect the cusp, as it should have been where major operations of this kind are to be made. And what was the result? A fracture of the lingual cusp, which allowed the fillings to roll out of the cavity.

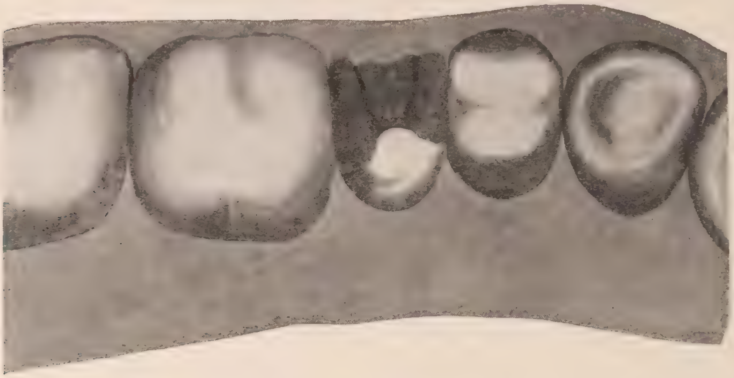

FIG. 2.

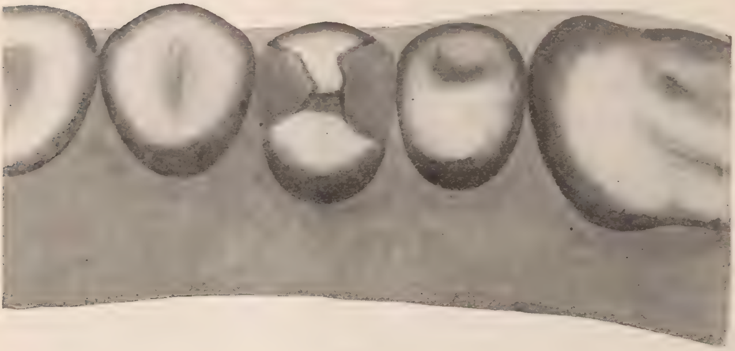

FIG. 3.

Illustrations 2 and 3 are similar to the case just reported, but in the two last named the buccal cusp was fractured, thus permitting the fillings to fall out of the cavity. In all of the cases reported it was necessary to make artificial crowns.

If the results which are here illustrated for your consideration are indicative of what follows, the application of such faulty methods, it seems to be only necessary to say that where two or more fillings approach one another or each other on occlusal or incisal surfaces, as is illustrated in these pictures, they should be anchored substantially one into the other. Much stronger operations are made by following such methods. Had the fillings which are illustrated in these diagrams, and which are now in these plaster of paris casts, been so anchored and the cavities extended to or a trifle beyond the marginal ridges, the fillings would beyond a doubt have remained in the teeth and the cusps would not have fractured.

It gives me much pleasure to say to you that tomorrow morning Dr. Searl will make an operation which will fully illustrate the method for making this operation properly.

All of which is most respectfully submitted.

REPORT OF THE SUPERINTENDENT OF CLINICS OF THE G. V. BLACK DENTAL CLUB (INC.) OF ST. PAUL FOR THE ANNUAL MIDWINTER CLINIC, HELD IN ST. PAUL ON FEBRUARY 19 AND 20, 1904.

BY E. K. WEDELSTAEDT, SUPERINTENDENT.

Mr. President and Gentlemen: Before anything is said of the operations, I desire to pay my respects to a number of men who have assisted us in making this annual midwinter meeting so gratifyingly successful.

Drs. Black and Johnson gave up their labors and left their homes to meet with us under very trying conditions. Dr. Black was far from well and Dr. Johnson had serious illness in his family. Notwithstanding these circumstances, both the gentlemen named came and ably aided us all toward having a more successful meeting than it would have been possible to have had under any other conditions.

We were all greatly pleased to have Dr. T. W. Brophy as a visitor. His discussion of our reports, essays, etc., was very interesting.

Dr. R. B. Wilson obtained the patients for our clinic. To him we are all indebted. He must have examined the teeth of over two hundred and fifty people to have obtained just what was desired.

The patients he selected, the cavities he chose and the necessary separation which he obtained were all which anybody could wish.

The members of the Club are all particularly indebted to Dr. K. E. Carlson for his untiring and never ceasing labor. He was here, there and, it seemed to me, everywhere. Dr. Carlson did not leave a stone unturned to make himself useful to anybody whom he could assist.

Dr. Searl also materially assisted a number of operators. Now, as I look back on the clinic, it stands out in our history as the most successful of all our efforts. And I thank you, each and all, for your assistance. It is not possible for us to forget the kindness of Mr. J. T. Ingersoll and his manager, Mr. David Perry, for obtaining operating chairs, engines, etc. For a number of years I have attended clinics and I have also assisted in arranging several meetings for the men in the Northwest; but never have I been so completely surprised as on entering the clinic room on Thursday before the meeting to find each chair fully ready for the patient and operator. Napkins were on the head rests of all chairs, engines were beside the chairs, an alcohol lamp, filled and ready to light, on the bracket attached to each chair, also an abundance of towels, pumice, cotton, and all the necessary essentials at hand and ready for the opening of the clinic on the morrow. It is not an easy matter for me to speak to you of how grateful the clinic committee felt at this act of thoughtfulness on the part of Mr. Perry.

CLINICS.

No. 1. Dr. G. N. Beemer, Mason City, Iowa.—Operation: Gold filling. Cavity: Mesio-occlusal surface of an upper left first molar.

No. 2. Dr. F. G. Richardson, Mason City, Iowa.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper left second bicuspid.

Both the above named cavities contained amalgam fillings, which had been made without obtaining any space in which to return the teeth to their original mesio-distal diameter. The result was a broad, contacted surface extending from the occlusal surface to the gingival margin. Dr. Beemer removed the amalgam filling in the molar and refilled the cavity with gold. The filling was the largest of any made at the clinic. Fully seventy-five or eighty grains of gold must have been used in making the operation. The finished operation was one of much beauty.

The following day Dr. Richardson removed the amalgam filling from the disto-occlusal surface of the second bicuspid. The cavity was reprepared and filled with gold. The occlusal anchoring for this filling was made in a gold filling which occupied the mesio-occlusal surface of the same tooth. These two clinics showed the change which can be made in restoring abnormal conditions to those of normal. The fillings were well trimmed and beautifully polished, the contact points were small, and a proper contour was given the interproximal space. The change produced by the alteration of the faulty conditions was worthy of much study.

No. 3. Dr. C. N. Booth, Cedar Rapids, Iowa.—Operation: Cavity: Mesio-occlusal surface of an upper right first molar.

The cavity of decay was large and involved the pulp. A general request was made that Dr. Black give a demonstration of capping the pulp, which was done. Dr. Booth thereafter placed a cement filling in the cavity.

No. 4. Dr. W. R. Clack, Clear Lake, Iowa.—Operation: Gold filling. Cavity: Mesio-occlusal surface of an upper right second bicuspid.

The cavity contained a gold filling, which had been anchored in lateral grooves instead of in the occlusal surface. The filling had moved mesially a trifle out of the cavity and the occlusion was of such a nature that this movement would have continued to cause the filling to move until it was completely out of the cavity. Dr. Clack removed the gold, made an entirely different preparation from the original. He made his anchorage on the occlusal surface and refilled the cavity. The resultant operation was a filling which was well contoured and polished. A beautiful contour was given the interproximal space and the contact point was very small.

No. 5. Dr. J. V. Conzett, Dubuque, Iowa.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper left first bicuspid.

The cavity contained a gold filling which had been trimmed and finished with rotary disks. There was no contact point nor any interproximal space. There was, however, a broad contact surface extending from the occlusal surface to the gingival margin. The old filling was removed, the cavity prepared along somewhat different lines than originally, and the anchorage placed in the occlusal surface. The cavity was then filled with gold.

No. 6. Dr. Conzett's second operation. Operation: Gold filling. Cavity: Mesio-occlusal surface of the upper right first molar.

This tooth contained a gold filling in the mesial surface which was devoid of all form. The previous operator had used a flat file and rotary disks to finish his filling. A broad. flat contact surface was the result. The old filling was removed and the cavity preparation made on a very different plan. The enamel toward the occlusal surface, just below the cavity, toward the interdental space, was removed and the anchorage made in the occlusal surface. Both of Dr. Conzett's fillings were very beautiful operations. Beautiful in form, design and finish. In both operations a proper contour was given the interproximal space.

No. 7. Dr. William Finn, Cedar Rapids, Iowa.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper right second bicuspid.

Dr. Finn made a most beautiful operation. The tooth was restored to its original size mesio-distally. A small, rounded contact point was left on the filling. The filling was so trimmed that the interproximal space was nicely contoured. In trimming the occlusal surface of his filling he restored the linguo-buccal triangular ridge. The filling was a very dense and rigid mass of metal.

No. 8. Dr. J. B. Pherrin, Central City, Iowa.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper right first bicuspid.

There is nothing to be said regarding the cavity preparation, packing of gold. trimming the filling to form or the polish given the filling beyond these few words: The operation was ideal in every sense of the word.

No. 9. Dr. A. M. Lewis, Austin, Minn.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper left first bicuspid.

The cavity was prepared along lines which received the endorsement of all who witnessed it. The filling was made as well as the hand of man could make it. The contour given the filling and interproximal space was in harmony with the polish given the filling. A better operation could not have been made.

No. 10. Dr. A. C. Searl, Owatonna, Minn.—Operation: Gold filling. Cavity: Disto-occlusal surface of an upper left second bicuspid.

It is a most difficult task for your superintendent to report on this operation, for the reason that Dr. Searl does not leave anything to criticise. He was in command of his usual great skill and used it to advantage. On the completion of his cavity preparation he called for criticisms. The only criticism offered was, that the anchorage on the occlusal surface in the gold filling, which had been previously made in the mesio-occlusal surface of the tooth, was insufficient for the filling which was about to be made. After an explanation of the occlusion of the teeth and the lines of stress as they would affect the filling, the cavity was filled and the operation completed. The filling was a "Searl," therefore as near perfection as it was possible to make it. I do not feel called upon to say more than this about any operation Dr. Searl may make.

Here is a report of ten operations which were made in the proximo-occlusal surfaces of bicuspids and molars where all the principles of extension for prevention were ignored and the principles of convenience substituted for them. In all cases the cavities were cut a trifle more than two-thirds the thickness of the tooth, linguobuccally, so that the operation of preparing the cavity, placing the gold, condensing the same, would be in the best position possible to obtain a good marginal condensation, being able to quickly trim the filling to form and polish it. In no case was there a matrix used. In all cases, unannealed gold in the form of cylinders was used for the gingival third of the cavities and the filling finished with annealed or cohesive gold. Each filling was beautifully trimmed to form, highly polished, and a proper contour given the interproximal space. In the nine operations made each man used the Black method of preparing his foil. The sentiments expressed by a large number of practitioners are echoed when I say: The standard of the operations which were made at this clinic was the highest of any which I have ever attended. Further, these ten finished operations are so nearly alike in appearance, size, form, etc., that on examining them everybody would be deceived in the belief that they had been made by the same operator.

Let me now call your attention to the other operations and the table clinics.

No. 11. Dr. J. O. Wells, Minneapolis, Minn.—Operation: Porcelain inlay. Cavity: Labial surface of an upper left central incisor. The cavity was situated in the middle of the gingival third of the crown. The porcelain, when baked and inserted in the cavity, demonstrated to the satisfaction of all present that Dr. Wells is possessed of greatest skill in this special line of work.

No. 12. Dr. W. D. James, Tracy, Minn.—Operation: Gold filling. Cavity: Mesial surface of an upper right central incisor. On account of the tooth being irregularly situated, it was necessary to make an operation somewhat out of the line of the ordinary. This was done. The filling was all that could be desired.

No. 13. Dr. C. E. Laird, Des Moines, Iowa.—Operation: Gold filling. Cavity: Distal surface of an upper left lateral incisor. The greater part of the distal surface was found to be a mass of decalcified dentin. This was removed and a very beautiful cavity made. The cavity was filled with gold, which fully restored the conditions to as nearly normal as possible.

No. 14. Dr. S. R. Holden, Duluth, Minn.—Operation: Gold filling. Cavity: Mesial surface of an upper left central incisor. Dr. Holden prepared his cavity according to established methods, displaying, as he always does, the great skill of which he is the possessor. In packing his gold, he demonstrated his method of using the automatic mallet. The filling was beautifully polished and reflected the usual credit on the operator.

No. 15. Dr. S. Bond, Anoka, Minn.—Operation: Gold filling. Cavity: Distal surface of an upper left central incisor. As I looked at the cavity preparation which Dr. Bond had made, I did not envy him his operation. Fully three-fourths of the distal surface was involved. A better cavity preparation could not have been made. This special operation was examined a number of times while being made. There is no criticism to offer. The completed operation was a massive gold filling, of great density, beautifully trimmed and polished. I take much pleasure in publicly complimenting Dr. Bond for his display of skill and on his ability to make such an operation.

No. 16. Dr. F. S. James, Winona, Minn.—Operation: Gold filling. Cavity: Mesial surface of an upper left lateral incisor. The tooth was a very small one and the cavity such that I felt the pulp would be exposed. Dr. James, however, found that the decay had not progressed to the extent which we thought. A very beautiful cavity preparation and filling was made.

Each of these operations was of the highest type possible to make. The cavities were prepared along lines which showed at once that the operator was fully acquainted with the conditions surrounding the case. The gold was very strongly condensed. A proper form was given all fillings and the interproximal space was fully contoured. It was a great surprise to me to see all the operations finished in this manner, for the reason that too many operators still seem to believe that contact points are not essential or necessary where fillings are made in the mesial or distal surfaces of central and lateral incisors.

No. 17 and 18. Dr. J. B. Ridout, St. Paul, Minn.—No. 17. Demonstration. Making an open-faced crown. Dr. Ridout appeared at the clinic with a blow-pipe, a piece of gold plate, a cast, a pair of shears and a pair of pliers. The gold was trimmed to the form he desired and fitted to the cast. He then brought the edges together and welded them. He again trimmed the crown to form, fitted it to the tooth and passed it for the inspection of all who were present. Length of time of demonstration from start to finish, fifteen minutes.

No. 18. At the second day's session the doctor appeared with the same things as he used at the first day's session. He first made a band for an all gold crown and welded the edges. The cusps were carved for the occlusal surface of his crown and stamped. The band was then fitted to the occlusal portion of the crown and welded. No solder was used in either demonstration. The skill displayed by Dr. Ridout in making these two crowns was very great. Those witnessing the demonstrations were amazed at the doctor's apparent ability to make his gold plate do just what he desired.

No. 19. Dr. G. D. Moyer, Montevideo, Minn.—Table clinic. Appliances for fractures. Dr. Moyer had a number of plaster of paris casts, illustrating some cases of fracture of the upper and lower jaws which he had treated. The teeth on the casts had similar appliances on them as were used in the actual treatment. A full explanation was made of each case and a most excellent demonstration.

No. 20. Dr. F. S. James, Winona, Minn.—Table clinic. Dr. James took some freshly extracted teeth and cut them into sections. One-half of the sections were treated with dioxogen and then placed in the different essential oils. The other half of the sections were placed in essential oils without first being subjected to the dioxogen bath. The sections were all nicely mounted and the penetrability of the different remedial agents used was plainly discernible. Fifty-six sections in all were displayed.

No. 21. Dr. A. M. Lewis, Austin, Minn.—Porcelain crowns.

Mounted on a large card Dr. Lewis had a number of porcelain crowns which had been baked by practitioners in different sections of the northwest. After receiving the crowns, an exact measurement was taken of each. The crowns were then placed in the dynamometer and pressure turned on until they fractured. The crowns and the data pertaining thereto were on the display card. This exhibit, like the two first named, was most instructive.

No. 22. Dr. W. D. James, Tracy, Minn.—Artificial dentures, exhibit and demonstrations. Display of upper and lower dentures which had come to Dr. James for correction. Attention was called to the faulty occlusion, position of teeth, etc. An exhibit of the new dentures showing what improvement had been made by following the methods which he advanced.

Last of all: The teeth for an upper and lower denture were ground and occluded so that all who were interested could have the benefit of Dr. James' knowledge regarding this subject. This was a demonstration.

It gives me much pleasure to particularly commend those giving table clinics. All the exhibits were very nicely arranged and better demonstrations could not be given. For example: In the last table clinic reported, Dr. James had the old and new dentures mounted in plaster of paris casts. These casts had been placed in Bonwell articulators. Pink colored wax was used to illustrate the gums and tissues which would naturally surround the dentures. The cases were not only beautifully made but artistically mounted.

In view of the fact that the teachings of the renowned Black have been constantly assailed by all manner of opposition and misconstruction from some men in our profession, it is one of the greatest pleasures of my life to be able to report as I have on the clinics which you gentlemen have made for the consideration of Drs. Black, Johnson, Brophy and the rest of the profession who have attended our clinic. After many years of calm and independent thinking, based as it was on actual experience gained from a careful observation at the chair, a study of conditions which led to the failure of dental operations, more scientific research and a still greater amount of investigation, Dr. Black promulgated certain theories and methods for the consideration and use of the thinking men composing our profession. Like all work for the good of humanity, this work of Dr. Black's was not accomplished in a day, week or year. I have not the time to say what I wish on this subject and shall, therefore, conclude my remarks by saying it must be most gratifying to Dr. Black to see so many men from different sections of this Northwest here today who have the courage of their convictions. These men have not only accepted the results of Dr. Black's deep and scientific thoughts, but they have put into actual practice the methods which he and all other intelligent men feel are for the salvation of the human teeth.

The man who incessantly works for the good of a profession need not expect to see his ideas regarding certain methods of procedure so fully accepted and carried out as has been a characteristic of the operations made at this clinic. If he does live to see his theories accepted and his methods followed, he is able to close his chapter with the knowledge that his work will live long after him.

All honor to Greene Vardiman Black and the mighty work which he has done for us.

"Low! mid your autumn leaves,
What men scorned now truth appears,
And your dreams are bearing sheaves
In the harvest of your years."

OCCLUSION OF ARTIFICIAL TEETH.*

[Report of Demonstrator of Mechanical Dentistry.]

BY DR. W. D. JAMES, TRACY, MINN.

Mr. President and Gentlemen: My report today is one that deals with plain facts, not oratory. I trust it will be appreciated for its shortness, if for nothing else.

I am aware that the average dentist of today is not interested in prosthetic dentistry. If you doubt my statement and will come with me to my laboratory and view the many different cases which come to me for correction I can prove what I have just said beyond the question of a doubt.

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*Read before members of the G. V. Black Dental Club (Inc.), St. Paul, Minn. Annual midwinter clinic, February, 1904.

The causes of failure are not so much from lack of ability as from lack of using ability. It has been my observation that artificial dentures, I care not from whose hands they come, are seldom made after any definite rule. I will admit there are many sets of teeth that do fairly good service, and there are many which look well and of which the occlusion is good as far as the up and down movements are concerned, but when it comes to the lateral movements of the jaw they fail utterly. The regular horse-shoe shape, which we see so often, will not admit of the lateral movements and at the same time bring the bicuspids and molars into a position where they will bear an equal amount of stress, and this, consequently, is the cause of teeth breaking from the plate and also the rocking and tilting of the plate which causes the patient and also the dentist so much trouble.

We will now look at another picture and see if we can arrive at any definite conclusion regarding what constitutes correct occlusion.

Assuming that all the steps up to the occlusion have been taken, we will proceed from there. Before we can comprehend what constitutes true occlusion we must be familiar with the anatomy of the human jaw and its functions. I am fully convinced that the only way to learn anything about correct occlusion of the teeth is to make models of different mouths and study closely their general characteristics, also the abnormal conditions which present themselves.

To Dr. Bonwill we are indebted for an articulator which more nearly approximates the human jaw in all its movements than any other that has ever been produced. This fact I have proved to my own satisfaction and you can do the same if you will make a search for the truth. It needs no argument on my part to convince you that an artificial set of teeth should correspond with the natural ones in every respect. Then let us take nature for our guide and see how near we can duplicate her work. A study of the anatomy of the lower jaw proves one thing, and that is, it is just the same distance from the center of one condyle to the center of the other as it is from the condyles to the point where the two central incisors meet at the cutting edge, thus forming a triangle of four inches, seldom varying more than a fourth of an inch.

Now if we observe these points we shall notice that law and order is the rule and that the jaw in forming this triangle brings into contact the largest amount of grinding surface of the bicuspids and molars, and at the same time it allows all the incisor teeth to come into action during the lateral movements of the jaw.

You will also notice in observing this rule that from the cuspids the bicuspids and molars run in nearly a straight line instead of a curved one back to the condyloid process.

In the normal jaw there should be an over-bite and also a corresponding under-bite, without which the incisors would lose, very largely, their functions, that of incising food. Where the incisors strike directly upon each other the power to cut off food is much lessened.

Where there is an over-bite and under-bite, just in proportion to their depth will be the length of the cusps in the bicuspids and molars. The curvature at the ramus must be made to conform to the depth of the over-bite so that when the lower jaw is thrown to the right or left the outer and inner cusps of the teeth on both the upper and lower dentures, on that side, come together at the same time. The curvature should be great enough to allow the lower second molar on the opposite side to move forward to meet the first molar in the upper denture. This will also prevent the rocking and tilting which I mentioned in the beginning of my report as causing so many failures.

Gentlemen, I thank you for your patience and trust you may all become disciples of anatomical occlusion of artificial teeth.

FAILURES IN CROWN WORK.*

BY DR. A. M. LEWIS, AUSTIN, MINN.

As the members of the G. V. Black Dental Club, of St. Paul, seemed interested in the report of some conditions of failure in fillings, I thought, perhaps, a short report of failures in crown and bridge work would not be amiss. What is a failure in crown work? As I was sitting in my office some weeks ago I asked myself this same question. I tried to answer it, but to me it was a puzzle.

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*Report of Demonstrator of Crown and Bridge Work. G. V. Black Dental Club (Inc.), St. Paul.

The demonstrator of operative dentistry of this club has shown us failures (I might say by the handful) in his special line of work; teeth where the fillings had no contact, teeth where one-half of the filling was in the interproximal space, teeth where decay had started at the gingival margin, teeth filled on a mass of decay. In truth, failures were all around us, and I wondered if it would not be a good plan to invite the demonstrator to show us his collection of perfect work, that we might again be enthused.

Instead of stating what a failure in crown or bridge work is, I shall give a report on what should be considered a failure in crown or bridge work, for we should remember that a crown covers up a multitude of sins.

I shall divide this report into six headings, and each heading shall be considered separately; and any crown or bridge that does not conform to these headings should be considered as a failure:

First—A Study of Stress. You may ask, What has this to do with the failure of a crown? It has everything to do with it. I think that at least 80 per cent, and I do not know but what I should be justified in saying 90 per cent, of our crowns and bridges failed because no attention had been given to stress. Do you realize that every time we close the jaws in mastication the molar teeth are subjected to a pressure of from 75 to 150 or perhaps 200 pounds? Do you realize that unless you make a crown that will withstand this amount of stress it will be a failure? A lady enters your office and requests you to examine her teeth. You find them in good condition, except an upper right central incisor; this is so badly decayed that in order to restore it you must make a crown. Without a thought of stress you decide to use a porcelain facing, attaching it to the pin and ferule with some porcelain body manufactured for that purpose. The crown is a success. The tooth was subjected to a pressure of not more than 100 pounds. The porcelain crown would stand 225 pounds. A gentleman enters your office and makes the same request. Again, without a thought of stress, you make a porcelain crown. You did not observe that the bite was close. You did not notice that the masseter muscles were large and well developed. You were not aware that the molars and second bicuspids were missing. In fact, you did not realize that the crushing power of these central and lateral incisors was greater than porcelain could withstand. As a result, the crown was a failure.

Second—Previous Separation. If we expect to make a crown that will bear inspection and will not be a menace to the integrity of the tissue in the interproximal space, we are called upon to consider another important condition, and that is to have complete separation. There is a strong inclination among practitioners to avoid this most necessary procedure. Too many of us have removed crowns where the contact extended from the gingival margin to the occlusal or incisal surface. The dollar seems uppermost in the minds of many dentists, and they try to convince themselves that it is better to make the crown at once and place it in position than to take the time to separate the teeth and run the risk of losing the patient. These crowns may preserve the root of the tooth, but they do much harm to the gums and health of him who wears them. They also are failures.

Third—Proper Trimming of Roots. Under this heading I wish to advocate the removing of all enamel. If this can not be done without destroying the pulp, I prefer to do the latter rather than leave the enamel in place; the ferrule should take the place of the enamel, and the crown, when finished, should appear to the operator no longer, and to the patient no more cumbersome than the original tooth. Teeth that are crowned where the enamel is not removed and where the measurement at the gum line is not greater than at the occlusal surface, even if the interproximal space, contact point and occlusion is perfect, are failures.

Fourth—Contact Point. This heading goes hand in hand with number two, previous separation, for without previous separation we can not have an interproximal space, and without interproximal space we can not have contact point. A contact point is as necessary on a crown as it is on a filling, and without it the crown is a failure.

Fifth—Occlusion. I think the members of our profession have improved, in a marked degree, during the last five years, in occlusion in crown work. Our colleges have paid special attention to it. Our young graduates, in calling our attention to their crowns and bridges, so often say, "Look at the occlusion," sometimes forgetting other vital points. But the occlusion is very important, not only for masticating purposes, but for the safety and preservation of the bridge. I think I can safely say that more crowns become loose from faulty occlusion than from poor cement.

Sixth—Sanitary Work. How many of you ever thought of making sanitary bridge work—clean bridge work and bridge work that can be kept clean? We can make a bridge that will comply with the first five of my headings and yet be a failure. I know of nothing more filthy, nothing more disgusting than to be compelled to remove an unsanitary bridge. We remove it from the mouth, carefully concealing from the sight of the patient what he has, perhaps, tasted for years, and, with the bridge in our left hand and our nose in our right, we quietly steal away.

I have here two bridges. The first I shall call an unsanitary bridge, the second a sanitary bridge. An unsanitary bridge is one that can not be kept clean under any circumstances. A sanitary bridge is one that can be kept clean if the patient is so inclined. The unsanitary bridge was worn for eight years. The sanitary bridge was worn for one year. There are bridges which are called sanitary without facings that are easier to keep clean than this one, but I was unable to obtain a practical case.

The gentleman from whose mouth this model was taken first came to my office seven years ago and stated to me that he had spent a great deal of money on his teeth, but was unable to obtain fillings which would remain in place longer than a few months. I looked over his teeth carefully and came to the conclusion that here was a case which calls for materials having strength. The stress was such that I did not think porcelain crowns could possibly give good results. The pulps in the teeth were in good condition and I desired them to remain so. Gold crowns were placed on all incisors. This procedure is contrary to my usual practice and views, but it was necessary to consider the stress. Last week the gentleman entered my office again. At that time I made this model and tested the stress of his incisors. I placed the gnathodynamometer so that I could measure the stress of the upper left lateral anl cuspid; I obtained 165 pounds. I asked him if that was as hard as he could bite. He said: "No; but I am afraid of fracturing my teeth. If I were a young man I would close the gnatho." This man is 65 years old and weighs 175 pounds. I believe that the use of porcelain crowns in this case would have resulted in failure.

THE REALM OF THE IDEAL.*

BY DR. J. V. CONZETT, DUBUQUE, IOWA.

Mr. President, Members of the G. V. Black Dental Club of St. Paul, and Friends: The Realm of the Ideal in Dentistry must comprehend a perfect man, having a perfect knowledge of his profession, being surrounded by a perfect environment, and having perfect patients upon whom to operate. This is certainly an ideal high enough to forever call upon all of us to put forth our utmost exertions. As a man he is in honor bound to be clean in his personal habits, clean in his thoughts, and clean in his dress. No *gentleman* will need to be told that it is necessary to be clean, but cleanliness comprehends more than physical cleanliness. I believe that clean thoughts beget clean thoughts, and foul thoughts attract those of like kind.

His perfect environment must be a perfectly modeled, perfectly furnished and perfectly equipped office. I might spend all of my time and write a book upon each of these subjects, but it will only be possible for me to consider one or two of them.

The office must, first, be clean; second, it must be clean; and third, it must be clean. Clean in all of its furnishings, clean in its odors, clean in its instruments. There should be plenty of light and it should be from the proper direction, which for me is the north, and plenty of pure, fresh air. It should be perfect in its arrangement for the comfort of the patients and the convenience of the operator. And while the physics of the office are being studied it must not be forgotten in its arrangement and furnishings, that man, and especially the feminine man, has an esthetic as well as physical nature.

His desire for a perfect knowledge of his profession will cause him to be a student all his life, a student of the attainment of others, and an investigator into the secrets of nature. As he studies and investigates his subject and discovers the immensity of his field of research and the paucity of his time and talents, he will more and more devote his energies to one line of labor, and the end will find him a specialist along some line of work in his profession.

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*Read before members of the G. V. Black Club (Inc.), St. Paul, Minn., annual midwinter clinic, February, 1904.

The perfect patient.—The fulfillment of this ideal lies more in our hands than many of us think. Most of our patients are a good deal what we make them. We rarely have trouble with our patients if we have no trouble with ourselves. The ideal dentist will control his patients because he will control himself; they will have confidence in him and submit themselves perfectly to him. I believe there is food for much thought in this proposition, but I must leave it for your future consideration.

As the dentist studies the causes of his failures I feel that he will more and more cleave unto gold as his filling material. Not because it is the best material of Dr. Miller's dream, but because it is the nearest to that which nature has revealed unto him. As he studies and experiments he will become so proficient that he will give his patients the benefit of better operations.

The ideal gold filling will have its margins carried into the region of comparative immunity; will be perfectly adapted to the walls of the cavity, making an absolutely water tight filling; will be so dense that its specific gravity shall be close to that of cast gold; so contoured that it will preserve the interproximal space; and so antagonize the occluding teeth that it will have the greatest usefulness consistent with safety; and finally will be finished and polished like a mirror. You will all recognize in this filling the filling that Dr. Black and Dr. Wedelstaedt have been trying to teach us to make for the past twelve years.

It is not necessary to emphasize the first point, for the doctrine of extension for prevention has been demonstrated and accepted by the profession, and he who does not practice it must place himself outside the ranks of progressive dentists. All intelligent dentists recognize the necessity of having gold properly adapted to the walls of the cavity, but alas! few attain it. In order to make moisture proof fillings there must be free access. We must not be afraid to cut away the tooth sufficiently to be able to operate easily and conveniently. We have all seen failure after failure of operations which have been made in cavities where it was impossible for the operator to conveniently reach certain points in the cavity. The cavity could have been made most convenient by a little judicious cutting. It is better to cut away sound tooth substance and make a good filling that will preserve the tooth, than to try to preserve the sound portions and in the end lose the tooth, through the impossibility of making a good filling. For what shall it profit the patient if you save a millimeter of enamel and lose the whole tooth? With perfect access must go proper instrumentation. The gold must be built up piece by piece, from the center of the cavity to the margins, always stepping the plugger point toward the margins or walls of the cavity. The line of force must be toward the same point, the instrument being held at as great an angle as ten centigrades if the conditions will permit. Under no circumstances should the instrument be held in such a manner that the gold will have a tendency to be driven away from the walls or margins of the cavity.

Recently at a clinic, after I had finished an operation of filling a cavity in the mesio-incisal surface of an upper left central incisor, a teacher in one of our colleges approached me and said: "Dr. Conzett, I used to make those fillings, using the incisal step, but I have quit it because I found that they always got blue under the filling." Then he continued, "You will find that yours will do the same." I told him that I thought not, for I had been very careful of my instrumentation. I have seen those fillings several times since and they are still as perfect as when made. But if we are not careful to carry our line of force in the proper direction, failure of the kind spoken of is sure to come, sooner or later. I feel that we can not too strongly emphasize this point, for we see it violated every day, and it is a daily occurrence to be asked to replace fillings which have failed for no other cause. If we will but observe men operate at clinics we shall find that the majority of them have absolutely no comprehension of the subject of instrumentation.

The density of the gold must be as near the full S. G. of cast gold as possible, and this can be attained only by careful and skillful operating. The question of mallets and hand pressure was definitely settled by the experiments of Black and Wedelstaedt, and the hand mallet with a good blow was found to give the best results. The results of the experiments are daily being verified by our clinical experience. I have tried every form of mallet and was never satisfied with the results until I adopted the hand mallet, using it as taught by Dr. Wedelstaedt, that is, giving a 32″ of a sheet pellet forty blows, a 16″ eighty blows, and an 8″ 120 blows of the mallet. The result of following this method is a dense filling that takes a high polish and retains it. Every man who expects to attain any degree of efficiency in the manipulation of gold, should carefully study the classical paper on "The Physical Characteristics of Gold," by Dr. G. V. Black. (See Cosmos for 1895.)

Perhaps the point that is most neglected and least understood by the profession in general is the proper contouring of the filling. Any dentist who has not made a study of this subject will immediately dissent from this proposition. For every man thinks that that is the one thing which he does know how to do. And yet a study of the operations which come to us, day after day, show that there is either a lamentable ignorance upon this subject, or too much carelessness. It is rarely that a patient comes into my office with operations from the hands of other dentists, which have been so contoured that the interproximal space is properly preserved. I might almost say that this is never the case. And yet that is not true, for when the patients from the hands of the men who have been taught by Dr. Wedelstaedt come, it is only necessary to ask from which of his pupils they came.

The first step in making operations in proximal surfaces is a proper separation. This may be obtained in any way that seems desirable, either by slow or by immediate separation. In some cases that have come to me for correction, it was necessary to try for weeks, and in some cases months, before sufficient space was obtained to restore normal conditions. One young man in particular who has been in the hands of some of our most noted men, had his teeth so mutilated that I have been almost a year in correcting the faulty conditions. One tooth, by actual measurement, using a sound tooth as a guide, had lost four millimeters of its surface mesiodistally. There was no interproximal space and great discomfort resulted, as well as recurrence of decay. By separation and proper contouring I am restoring the lost masticating surfaces and giving him the comfort of normal interproximal spaces. This is only one of many such cases. After proper separation and the insertion of the filling, the filling should be properly trimmed and polished. With the Black saw the gold can easily and quickly be cut from the interproximal space. care being taken not to cut away the contact point. Then with the Black or Wedelstaedt trimmers the filling can quickly be trimmed to form, sloping all lines toward the contact point, which should be as if the surfaces of two marbles were brought together. If this is properly done the food in its excursions over the teeth will slide over the surface of the filling, past the contact point, away from the tooth and danger. If not properly done the food wedges between the teeth, inviting masses of micro-organisms and consequent decay, as well as setting up an active interstitial gingivitis. Always be careful to observe that there are no overhanging margins of filling material along the gingival border. These should be searched for the last thing before dismissing the patient and if found, removed. I recently excised two gingival tumors for a young lady. She told me that she had had them removed twice before, and her brother, a physician, was very much alarmed about them. In making an examination I found that the irritating cause was a mass of amalgam which had not been trimmed from around an amalgam filling. I removed the mass of amalgam and the tumors, and have thus far seen no symptoms of recurrence.

In making our operations a study of the occlusion of the teeth will disclose the cause of many of our failures and show us how we may avoid a recurrence of the same. We know that there is a great difference in the masticating power of different individuals. One man will close the gnathodynomometer with a pressure of 300 pounds, another will scarcely register fifty pounds. We know in a minute that a filling that would resist the stress of fifty pounds would quickly fail where it was called upon to resist the stress of 300 pounds. We should, therefore, study the condition of the teeth, in their relation one to another, and the power which the patient exerts when using them. Where the occlusion is such that I think it will endanger a cusp, I frequently find it necessary to remove it and build over the cusp, which I slightly bevel, and restore the same with gold. Frequently I grind off a portion of an occluding cusp, particularly in those teeth that have long cusps and correspondingly deep sulci. It is not safe to simply say to a patient, "Close your teeth," and then from an observation so superficial lay out the lines of our cavity preparation and calculate the probable stress upon our finished operation.

The passive and the active occlusion must be noted. Careful search must be made upon the occluding and incisal surface of the teeth for evidences of abnormal excursions of the teeth, either in mastication or, as is sometimes the case, as a result of nervous habits, or grinding the teeth during sleep. I remember an instance in which I restored the cusp of an upper right cuspid and dismissed the patient feeling very proud of the operation, when to my chagrin she came in the next day with my beautiful filling completely ground through. I found that she had done this in the night, and yet she did not close her teeth in that way at any other time. Another patient, a young man, destroyed an operation in the mesio-incisal surface of an upper right lateral incisor by swinging the sharp cusp of the lower right cuspid out to it and grinding thereon. When I made that operation again I was very careful to see that that cusp had lost its sharpness and length. The filling is still in place.

Finally the filling must be polished. This is not only for esthetic reasons, but for hygienic reasons as well. For the debris of food will not collect upon a polished surface, nor will the masses of bacteria as easily find a resting place there. Sand paper disks, strips and stones of various kinds can be used for the coarser finishing, and for the final polish, cuttle and crocus disks, followed by the use of a rubber or felt disk with pumice and whiting.

The ideal dentist, however, would not be confined to any one operation or any one class of operations; but if I were to attempt to idealize all the operations that he would be called upon to make, life itself would be too short to finish the task. Neither have I been able in so short a space of time to more than hint at the various steps in the evolution of the ideal dentist and the ideal gold filling. I trust that some suggestions may have been thrown out which will be caught by some of the men present and amplified in such a way that we may all be benefited thereby. If so, the humble mission of this paper will have been accomplished.

OUR DEVELOPMENT.*

BY DR. A. M. LEWIS, AUSTIN, MINN.

Friends and Members of the G. V. Black Dental Club of St. Paul: In choosing this subject for my essay I shall not speak of the dental profession as a whole, neither do I wish to extol the members of our profession who have the honor of being city practitioners. I wish to say a few words about the development and advancement of the men who are practicing in the smaller cities and towns of the Northwest. What have they done? What are they doing? And what are they going to do?

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*Read before the G. V. Black Dental Club (Inc.), of St. Paul, Minn., February 19, 1904.

Under the heading, What Have They Done? we must exclude the last six or eight years. It seems to me that that should come under the second heading, What Are They Doing? When the law of 1885 governing the practice of dentistry in the State of Minnesota was passed a large percentage of the dentists in our smaller cities were men who knew nothing about dentistry. In many cases these men had taken a special course of some six or eight weeks with a tutor who knew but little more than they did, and then branched out for themselves as full-fledged dentists.

Some of these men have gone home, some of them have become discouraged and some of them are yet with us; to these I say, "Brave old men, you have not only given and relieved pain, but you have set an example for the younger men that we shall never forget."

A younger generation comes in power, all graduates; there is fire in their eyes and enthusiasm in their hearts. They helped form dental societies and afterward forgot to attend them. They made strong resolutions and thought that they kept them. They paid for two or three magazines and did not read them, but they awakened one morning and found that the dental profession had moved on.

What are they doing? A few years ago the Southern Minnesota Dental Society was turned into a post-graduate school; the best men of the cities were invited to attend and assist us in our work. Crown and bridge work was our first subject, and up one side and down the other of a long table some twenty or thirty of us assembled. That day was the awakening of a new era for the country dentist, and we were filled with the desire for equality with our city brothers. Post-graduate work continued. Not long after this we were invited to a school in operative dentistry held in St. Paul; although this school was held in a month when the country dentist was the busiest (and there was some question as to whether it was wise to attempt a meeting at this time of the year), all fears were dispelled at the first session, for never before had so many dentists assembled in this Northwest; never before had such enthusiasm been shown, and this largely by the country dentist. The interest continued to spread; northern Minnesota took it up; western Wisconsin became interested, and the whole State of Iowa grasped the situation and fell into line. It was easier for Iowa, because they are all country down there, with nothing to drink but pure water and nothing to breathe but pure air.

What are we going to do? We are going to raise the standard of dentistry, and in order to do this the prices in the country must be raised. One dollar has been the universal price for an amalgam filling. At that price he can not do justice to himself or his patients, and I care not how much a man loves his profession, if we expect to elevate and raise the standard the value of our time must not to be sold in joblots. There is a great work for the country dentist; he must first educate himself, then educate his patients to believe as he believes. The man who remains at home and feeds on only what is within his reach is like the caterpiller feeding on the milkweed, neither realizing the pleasure nor beauty of what is in store for them until they break their chrysalis.

I think it will be fitting for me to close this paper with a poem that I read in one of the last numbers of the *Outlook:*

I hold you at last in my hand,
  Exquisite child of the air;
Can I ever understand
  How you grew to be so fair?

You came to this linden tree
  To taste its delicious sweet,
I sitting here in the shadow and shine,
  Playing around its feet.

Now I hold you fast in my hand,
  You marvelous butterfly,
Till you help me to understand
  The eternal mystery.

From that creeping thing in the dust
  To this shining bliss in the blue!
God, give me courage to trust
  I can break my chrysalis too!

PRACTICAL THERAPEUTICS.

THE REMOVAL OF PULPS FROM THE TEETH AND THE SUBSEQUENT TREATMENT.—CONTINUED.

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO.

Before considering the subject of devitalization of the pulp tissue I desire to emphasize the use of pressure anesthesia. There is no service which we can render that will be so gratifying to the patient, and inspire more confidence in the operator, than to painlessly remove, by this method, a pulp which has been aching for several days, and has caused the patient to become extremely nervous. By working carefully and gently this can be accomplished. It is my opinion that there are few pulps which will not yield to the anesthetizing influence of cocaine, providing the operator be persistent and confines the solution under the pressure.

We often have cases, however, where the tooth is not causing much trouble, the dentine is dense, and to force the solution through this structure, into the pulp, would perhaps take more time than we care to give at this sitting. These are the cases where arsenic can be employed to advantage.

Devitalization.—A great deal of difficulty has been experienced in trying to remove the pulp painlessly after arsenic has been applied. This is due largely to the uncertainty of the arsenical preparations used for this purpose. It is best to always use one formula, for the reason that various preparations act differently, owing to the amount of arsenic which they contain. The following is a modified formula of Dr. A. W. Harlan's which I have been using with satisfactory results:

℞	Arseni oxidi	ʒ j
	Cocainae hydrochloratis	gr. xx
	Menthol	gr. v
	Lanolini qs. ft. stiff paste.	

M. Sig.—Apply in the usual manner.

Note.—It is well to add a sufficient quantity of lampblack to color the preparation. It will also be found that, with the menthol, it requires very little lanolin to make a paste of the other two ingredients. The least amount of lanolin used the better will be the action of the remedy.

In applying arsenic it is always best to adjust the rubber dam. Remove as much of the decay as can be done without producing pain—sterilize the cavity and place the desired amount of paste as nearly over the pulp as is possible. This should be covered with a small paper disk or pledget of cotton and the cavity sealed with cement. Should the latter material be placed directly upon the paste, without the paper or cotton intervening, the acid of the cement interferes with the action of the arsenic. There are many reasons why cement is preferable to temporary stopping as the material with which to seal the arsenical dressing in the cavity. In those cases where the paste is in contact with the pulp the cavity can be hermetically sealed without producing pressure, which should always be avoided in sealing any treatment in a tooth containing an exposed pulp. Another very important object in using cement is to prevent the patient from removing the dressing in case the tooth should ache, which it sometimes does. This treatment should remain in the tooth from two to seven days. In applying the paste it makes very little difference whether there be an exposure or not. If applied directly to the pulp it requires less time to devitalize than in those cases where the application is made to the dentine. There are many factors which govern the length of time arsenic should remain sealed in a tooth; such as the location of the tooth in the mouth, the depth of the cavity, the patient's health, age, etc.

In removing the dressing care should be taken to take out all of the cement and the decay before opening into the pulp chamber. This can best be done with a large round bur. By this means we mechanically remove the arsenic which, should a portion remain under some of the unremoved cement, is liable to produce peridental inflammation. This is much better practice, in my judgment, than to depend upon dialysed iron to neutralize the arsenic. The canals can now be exposed and the pulp removed. If the canals can be dried and there is no evidence of soreness it is good practice to fill the canals at this sitting. By so doing we lessen the liability of infection and discoloration of the tooth by having a dressing temporarily sealed in the cavity. However, we are not always able to completely remove the pulp, dry and fill the canals at this sitting, in which case an anodyne treatment is indicated.

I have called attention, in a former article, to the care to be taken in *maintaining asepsis* in the removal of the pulp tissue. I also stated my objection to the use of hydrogen dioxide as a styptic. In connection with the *preservation of the color,* I must refer briefly to a well established method of treating teeth after the pulps have been devitalized.

The arsenical dressing is allowed to remain sealed in the tooth for the proper length of time, when it is removed, the cavity flooded with dialysed iron and the pulp chamber opened, usually producing hemorrhage. Then without any especial effort being made to remove the dialyzed iron or blood, tannic acid, in some form, is sealed in the cavity for the purpose of constringing and toughening the tissue.

In removing this dressing, in a week or ten days, it will be noticed that the pulp tissue is dark in appearance. In almost every instance, you can also notice that the tooth is several shades darker than the adjacent teeth. Tannic acid and iron are chemically incompatible—the resulting compound being iron tannate, one of the most insoluble substances known to chemistry. In the presence of moisture a form of ink is produced which is a great staining agent, and one that is almost impossible to remove by any known process of bleaching.

As I have stated, there are many cases where, for want of time or in inaccessible cavities, etc., it is best to apply arsenic. However, when this method is followed, tannic acid should *not* be used and every trace of the dialyzed iron (if used at all) and blood should be removed with alcohol.

I do not know that the mechanical process of filling the root-canals is a part of therapeutics; but it is impossible to *maintain asepsis* and *preserve the color* of the teeth without performing this operation; therefore I desire to say that while the canals should be as *thoroughly filled* as it is possible for us to do, care must be taken in filling all large canals so that the filling material is not forced through the apex of the root. This is often a cause of apical pericementitis. All large canals should be measured by wrapping cotton around a broach and inserting therein, when a gutta percha cone can be made slightly smaller than the cotton. By this means we can be reasonably certain that the canal is filled and yet avoid forcing the filling through the apex.

In the use of any arsenical preparation we must not expect to remove the pulp as painlessly as can be done by pressure anesthesia. The cases are few where it can be done absolutely without pain, unless two or three weeks has intervened between the time the arsenical dressing was removed and the attempt to remove the pulp. Usually time is an important factor to both dentist and patient. Therefore I have been using, with good results, a combination of the two methods.

In those cases where we have not time to force the anesthetizing solution through the dentine, arsenic can be applied until a subsequent sitting, at which time an exposure can be painlessly made and the pulp anesthetized by cocaine and pressure. Better results will be obtained by removing the arsenical dressing in twenty-four hours, and then causing the pulp to bleed before attempting to force the cocaine into the tissue.

The statement that cocaine has no effect upon the pulp tissue, after arsenic has been applied, is incorrect. There are many cases where the most painless and best results can be obtained only by using a combination of the two methods.

The treatment of pericementitis will be considered in our next article.

THE PREPARATION OF CERTAIN CAVITIES FOR PORCELAIN INLAYS.*

BY E. FRANK DAY, L. D. S., D. D. S., LONDON, ENGLAND.

Mr. President, Gentlemen: I had at first some hesitation in introducing this subject to you, as it is one which must have presented itself in a great measure to all workers on porcelain inlays, and it is a question which should decide itself at the outset as to what form a cavity should be made to take in order to get the best results, both from a practical and also from an artistic point of view, and I must ask your indulgence if I should mention some points which must be familiar to you, in the hope that I may be able to bring light to bear on some other points which may have escaped your attention.

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*Read before the American Dental Society of Europe at Hamburg, April, 1904.

In my opinion the ideal cavity for the reception of a porcelain inlay should be so shaped that the inlay on insertion can not be forced out of the cavity by mastication, or any other sudden pressure which may be brought to bear upon it.

I consider that any paper on this subject would be useless unless it was accompanied by practical illustrations, and I have prepared examples which I will pass round and which, I think, will fully convey my ideas.

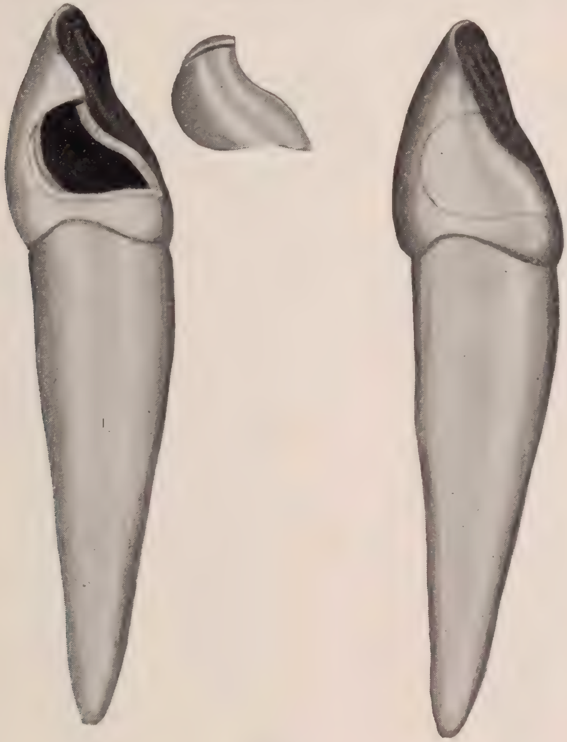

FIG. 1.

Before passing to these examples I would say that the chief point to be considered is to endeavor to dovetail or undercut the cavity on that side of the tooth where such a procedure will not offend the eye. This may be accompanied on the palatal surfaces of the anterior teeth, and the occlusal surfaces of the bicuspids and molars.

I do not propose in this paper to deal with simple cavities, by which I mean cavities which appear on the plain surfaces of the teeth, and saucer-shaped cavities bounded by a circular wall, where what is known as "contouring" does not enter into our calculations.

The first examples are those of proximal cavities in the anterior teeth. Fig. 1.

You will notice that this cavity has been cut well back on the posterior surface, and if you examine more closely you will also

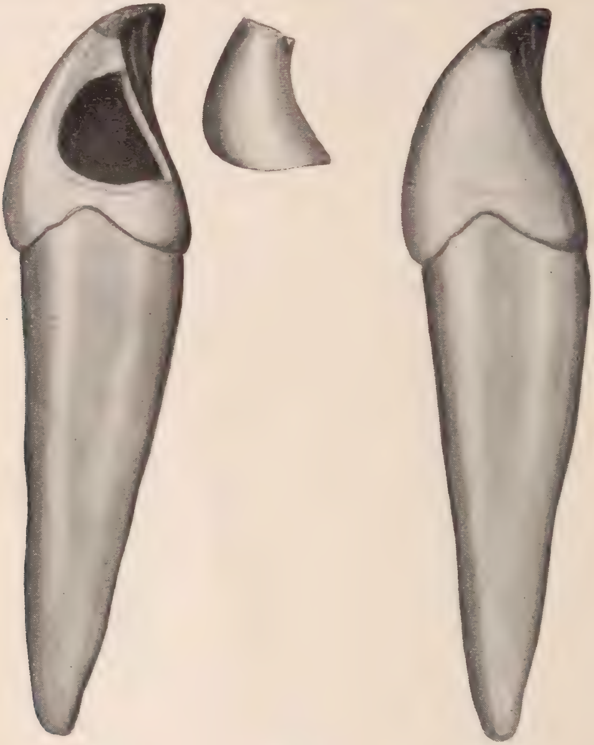

FIG. 2.

notice that I have made quite a dovetail, so that the inlay can only be drawn out of the cavity from behind, but no amount of force applied posteriorly can force this inlay out of position, unless we break away the substance of the tooth. Not only is this so, but such a cavity can be prepared with a minimum amount or practically no separation, which in my opinion is a very great point, as separating the teeth is not an agreeable process, and if it can be avoided so much the better. I have prepared two examples of inlays in central incisors. In one we have the typical proximal cavity, and in the other the proximal cavity with the extension to the cutting edge, allowing the incisal edge to be restored. Fig. 2.

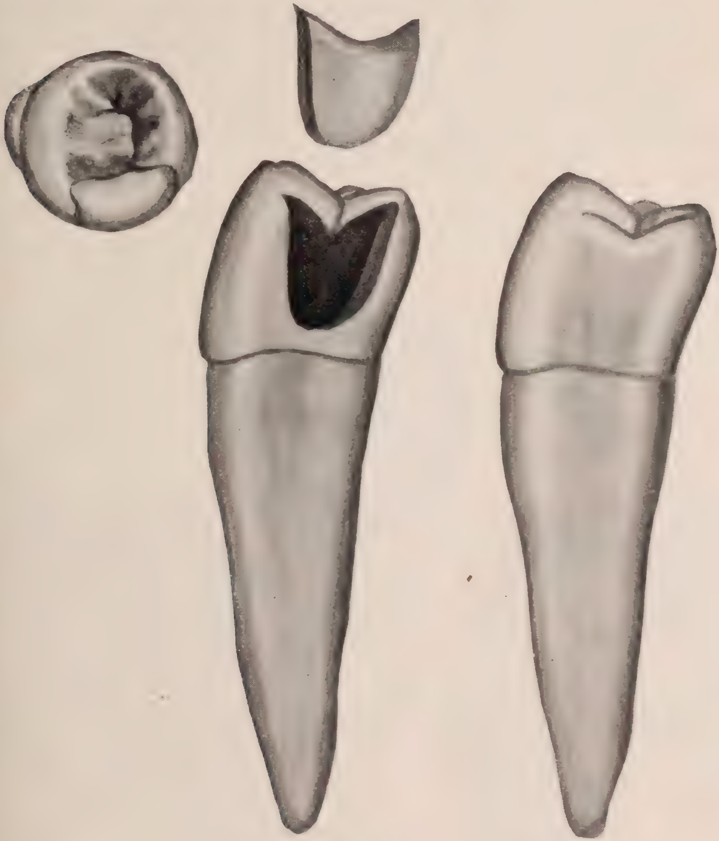

FIG. 3.

I now pass on to my second example, viz., that of a cavity prepared to retain a contour filling in—say a bicuspid. Fig. 3. You will notice if the inlay be withdrawn that there is a distinct undercut on the sides of the cavity for some distance down from the occlusal surface, also much more of a dovetail on the occlusal surface itself.

The advantage of this is, as you see, that the filling can not possibly be bitten out of the tooth, no matter what strain it may be subjected to. It will also be seen that an inlay so set into the tooth obeys in every respect the requirements of a good filling, combining the strength and contour of a gold filling with the appearance of a tooth that has never been filled at all. There may be in this class of cavity some objection on the score of weakness of the walls of the cavity, but when we consider that after the inlay has been set in position with cement, thereby making the tooth a perfectly solid structure, held firmly together, the result is the maximum amount of solidity and strength that can be obtained in such a case.

This is not the case, however, should we have attempted to fill such a cavity with gold, as the tendency in malleting the gold into position is to split off or separate the walls of such a cavity, the gold filling depending for its position in the tooth on the ability of the operator to pack the gold as tightly as possible into the cavity. I am of opinion that the operation which I present you, when

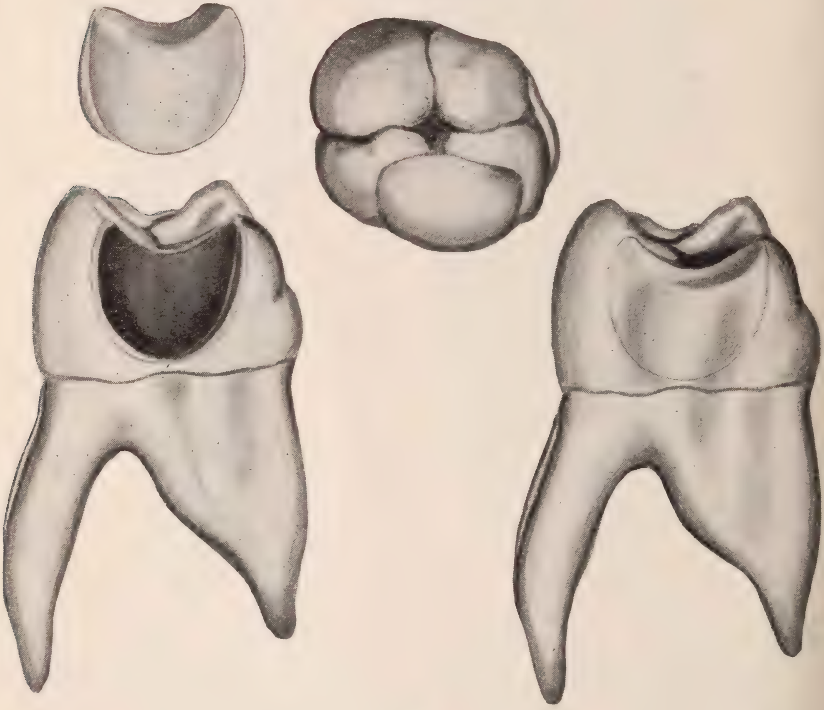

Fig. 4.

finished is the best thing that ingenuity and science has, up to the present, enabled us to accomplish for our patients.

I now pass on to the third example, viz., that of a contour proximal cavity in a molar tooth. Fig. 4. The chief points to be considered in connection with this cavity are very similar to those of the preceding case. The lateral grooving on the walls on the occlusal surface are similar, but we have the advantage of more tissue, as a rule, to deal with, and consequently stronger walls.

You will see that I have in this case made a substantial contour, and this can be and is well supported by the manner in which the cavity is prepared.

You have all met with cases when such a contour is indicated; for instance, should there be a tooth missing and the space partly closed up, or so closed up that the space to be restored does not allow of the insertion of another tooth, this operation is a great help in closing up the space, but judgment must be used as to shaping the contour, so as not to offer too much resistance to opposing teeth.

And now, gentlemen, I want to make a few remarks on the examples passed round. Of course, it is impossible always to follow out in detail everything I have pointed out. There is such a thing as sensitive dentine, and you will say that it is almost impossible to prepare cavities in the manner illustrated. All I can say is that you would have to do as much cutting, or more in most cases, if you intended to make a good gold filling, and probably it would cause as much or more pain, for then your anchorage would have to be made chiefly in the dentine.

By this method you will note that some of the anchorage is in the enamel, but where possible I would not hesitate to utilize the known advantages of dentine. And while I have, of necessity, had to exaggerate my examples to a certain extent in order to press home my points, I think that if more attention is paid to the undercutting of cavities for porcelain work we shall not have to rely on the cement as a means of anchoring our porcelain inlays, and, better still, we shall not hear so much about inlays dropping out.

Gentlemen, I thank you for your kind attention in listening to the few remarks I have presented on the "Preparation of Certain Cavities for Porcelain Inlays."

FACIAL NEURALGIA.*

BY H. L. SIMMONS, D. D. S., CHICAGO.

Gentlemen and Members of the Odontographic Society: It was with great hesitation that I began the preparation of this paper, but as I continued I became more confident that it was a subject which should and would interest all practitioners of dentistry. During the last year considerable discussion has been aroused as to whether dentistry should be considered a specialty of medicine, a separate, learned profession, or a trade. We shall all agree that it is more than a trade, and if it is a learned profession, or a specialty of one, we should be willing to turn from the purely mechanical part of dentistry and be interested in and have a scientific knowledge of all forms of disease pertaining to or affected by the organs of mastication.

Of this class of diseases perhaps the one most often brought to our attention is facial neuralgia, otherwise called trigeminal neuralgia or neuralgia of the fifth nerve.

An important reason why it should be an interesting subject to us is that its most obvious symptom is pain, and pain is the one thing which brings us most of our patients and the relief and prevention of which is one of our principal duties. Many physicians of modern methods refer all their neuralgias of the fifth nerve to a dental expert for examination, as trouble with the organs under his care is a direct cause in far more than 50 per cent of the cases.

The term, neuralgia, is applied to pain usually paroxysmal in nature which follows the course of a nerve or its branches. Facial neuralgia may be divided into two distinct classes: First, the essential, neuralgia major or tic douloureux; second, the simple, reflex or neuralgia minor. This first form, tic douloureux, is the worst and most difficult form to treat as, up to the present time, the pathological lesion at the bottom of this disease has not been discovered. Almost invariably we find that it has been mistaken in the early stages for simple neuralgia, as very commonly it begins in the upper or lower jaw in the region of one of the teeth—but never, in my experience, in the tooth itself.

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*Read before the Odontographic Society of Chicago, December, 1903.

The history of one of these cases is somewhat as follows: A man or woman—more often a woman—between thirty-five and sixty years of age, apparently in fair health, is suddenly attacked with pain in the course of one of the branches of the fifth nerve. The pain is continuous for some hours or days. The teeth receive attention, but no relief is experienced, or perhaps the tooth is extracted and the pain ceases for an interval; then recurs, and at last no day passes without an attack of greater or less severity, varying in duration. Gradually the attacks increase until consecutive work is impossible. The first attack is, so far as the patient can tell, without apparent cause, but later attacks may be brought on by changes in weather, constipation, and numerous mental conditions such as shock, business worry, etc.

Sooner or later the pain spreads to other branches in the same side of the face. Throughout many hours of the day the patient is racked by paroxysms of pain at regular intervals, lasting from a few seconds to many minutes. Sleep, except under drugs, becomes impossible; the patient dare not eat, talk or smile for fear of starting a paroxysm. Life becomes utterly unbearable and is often ended by suicide. The character of the pain is generally described as that which would be produced were a red hot electric wire plunged into the face, the current following the whole nerve; and at all times the pain seems to be below the skin. During the attack a breath of wind, the slightest touch of beard or hair, drinking or even swallowing saliva, will increase its severity. The affected side has a more or less permanent red flush; hair or beard may change color or fall out.

Prognosis.—Prognosis of tic douloureux is very unfavorable. Medical means cure but a limited number of cases and while surgical measures bring relief, unfortunately in very few cases is it permanent, though a respectable minority of cases is cured.

Treatment.—The proper treatment of this form of facial neuralgia includes a thorough treatment of the patient. All constitutional dyscrasia must be taken into consideration and treated hygienically and medicinally; indeed, attention to them is of far more importance than treatment of the pain itself. Every possible source of irritation must be removed. The constitutional condition of the patient must be thoroughly studied, and the diet and general habits directed accordingly. A quiet life in a warm, sunny climate, seems to benefit many of these patients, but does not cure cases which have already become severe. No drug is a specific, but carefully selected remedies often relieve and help.

Of the homeopathic remedies the most useful are aconite, belladonna, arsenicum and gelsemium given according to their several indications. Palliative medicinal treatment must be used, but I must protest in the strongest terms against the use of morphine and cocaine internally, as they can not be curative and the danger of establishing a habit is very great.

The drugs of the coal tar group have a palliative effect, even in the later stages, and large doses of quinine often relieve.

Local Measures.—Counter-irritation over painful spots or the actual cautery is of some value; equal parts of camphor and chloral rubbed up together, and menthol in oil are also useful. Freezing of the parts affected with ethyl chloride spray will often give marked relief. The skin of the face should be protected with a thin coat of grease, the eye carefully guarded. and the spray should never be directed against any one spot longer than three or four seconds. Galvanic electricity is sometimes curative but it rarely affords more than temporary relief.

All remedies failing, there are several surgical measures open to trial, such as nerve-stretching, nerve-resection, and the excision of the Gasserian ganglion; also ligation of the common carotid. The first two often afford relief for many months, but ultimately the pain recurs in nearly every case. The removal of the ganglion is a dangerous operation, but by the newest methods few of the cases are fatal and it is considered by the best authorities to be the only sure means of cure for this most terrible of all diseases.

NEURALGIA MINOR.

I shall now take up the reflex form, which is more important for us because the cure lies principally in our hands. Neuralgia minor, or simple reflex neuralgia, is the form associated with and, in fact, caused by disease in some organ and the pain may be entirely reflex or may accompany pain in the diseased organ, as, for example, pain in some portion of the face of a patient who at the same time is suffering with an aching tooth, or the pain in the face may be present without any known disturbance in a tooth or other organ of the head.

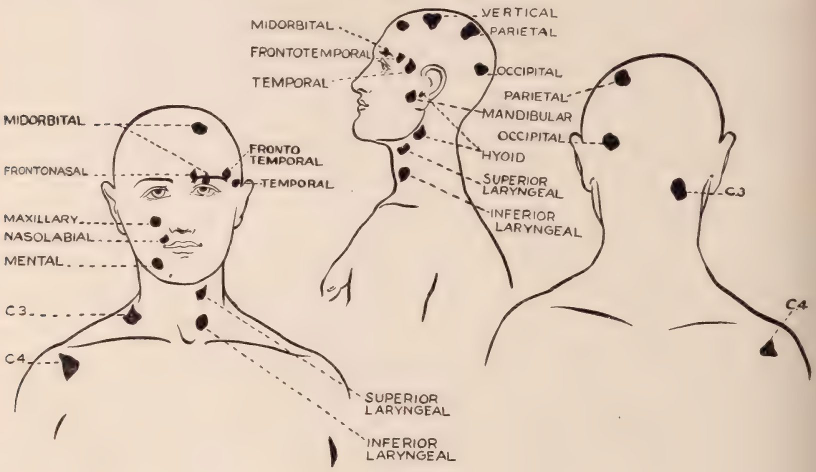
Prognosis.—This form of neuralgia can be cured if we can find the cause, and to help in this is the principal object of this paper.

Etiology.—Among the numerous causes dental troubles take first place, and this makes this subject a very important one for us. Neuralgia minor may also be secondary to changes and diseases of the eye and the ear, of the tongue, of the nose, and further it may be secondary to diseases of the organs within the thorax and abdomen; likewise to general diseases such as anæmia, diabetes, malaria, rheumatism, hysteria and other mental states. The discovery of the primary diseased organ is the first step toward performing a complete cure, and the greatest help in making this difficult discovery is the location of the portion of the face in which the pain is most severe and where the sensitiveness of the skin is most apparent.

To demonstrate this tenderness in the skin pick up the tissues lightly between the finger and the thumb and as soon as the tender spot on the face is reached the patient will complain that *there* he feels sore, tender or bruised. Sometimes it may be determined more accurately by light pressure with the blunt end of a common pin, and the patient will complain when you reach the most sensitive spot that he is being pricked with the pin or that the head of the pin touches a sore place.

To make this clear I have had charts prepared, as you see, and the different portions of the face divided into areas; also the maximum point of each area, and a table made to correspond to the areas as named in the chart. This table and these charts are taken from Thomas Clifford Albutt's "System of Medicine," and by comparison with numerous other authors I have come to believe it the most accurate assistance to diagnosis of the causes of neuralgia minor so far devised. He explains the preparation of these charts in the following paragraph:

"When an organ, such as the eye or one of the teeth, is affected, pain is situated not only in the organ itself, but is referred to parts at a distance in the scalp or face. Such referred pains when of sufficient severity and duration are accompanied by areas of superficial tenderness. These areas are supposed to represent the region of the nerves for pain, heat and cold to the head. The charts are given to show their character and distribution. When the tenderness is not very severe these areas may be present only in part; certain spots in each area are then found to become tender sooner and to remain longer than any other part of the area. These maximum points are of practical importance because they are the spots to which the patient refers his pain whether the pain be accompanied by superficial tenderness or not, and these maximum points I have shown in this chart:



TEETH.

Upper Jaw.		*Lower Jaw.*	
Incisors	Fronto-nasal	Incisors	Mental
Cuspid	Naso-labial	Cuspid	Mental
1st Bicuspid	Naso-labial	1st Bicuspid	Mental
2d Bicuspid	Temporal or Maxillary	2d Bicuspid	Doubtful
1st Molar	Maxillary	1st Molar	Hyoid
2d Molar	Mandibular	2d Molar	Hyoid
3d Molar	Mandibular	3d Molar	Superior, Laryngeal or Hyoid

EYES.

Errors of refraction.....................Mid-orbital, Temporal and Vertical

EAR.

Hyoid region principally. Sometimes Vertical and Temporal.

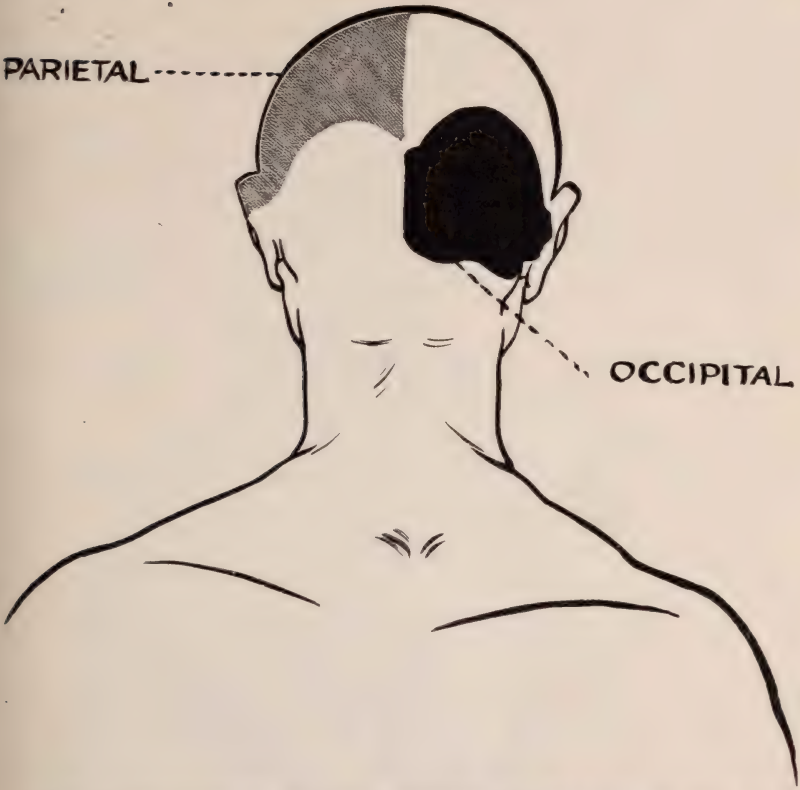
TONGUE.

Anterior portion	Mental	Dorsum	Occipital
Lateral portion	Hyoid	Tonsils	Hyoid

NOSE.

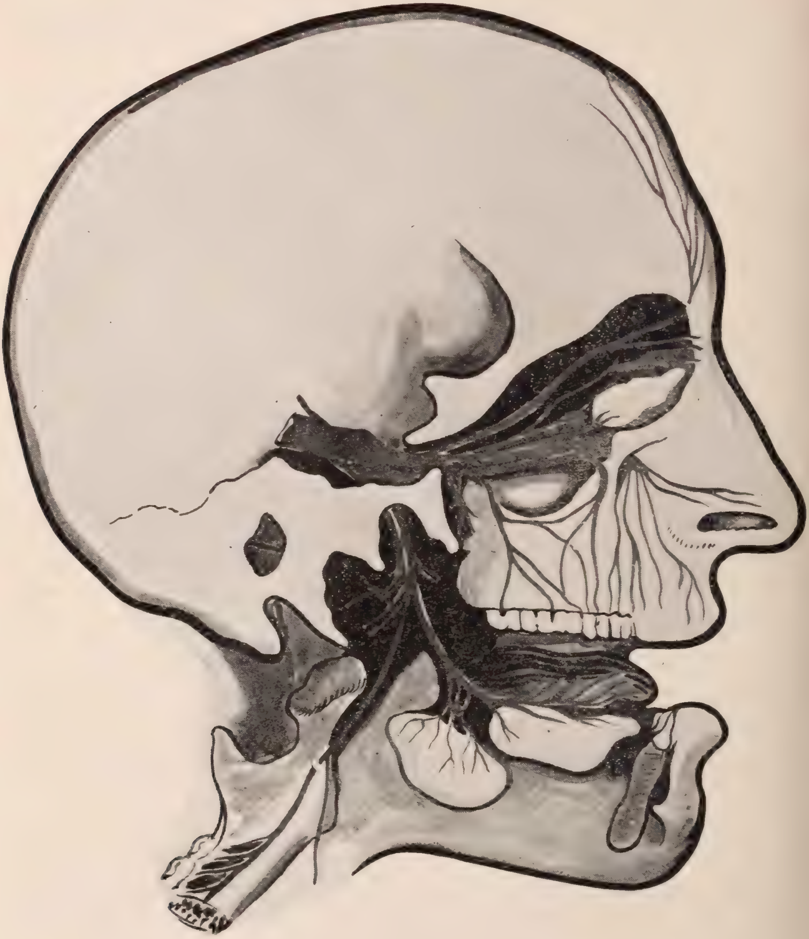
Fronto-nasal and Mid-orbital.

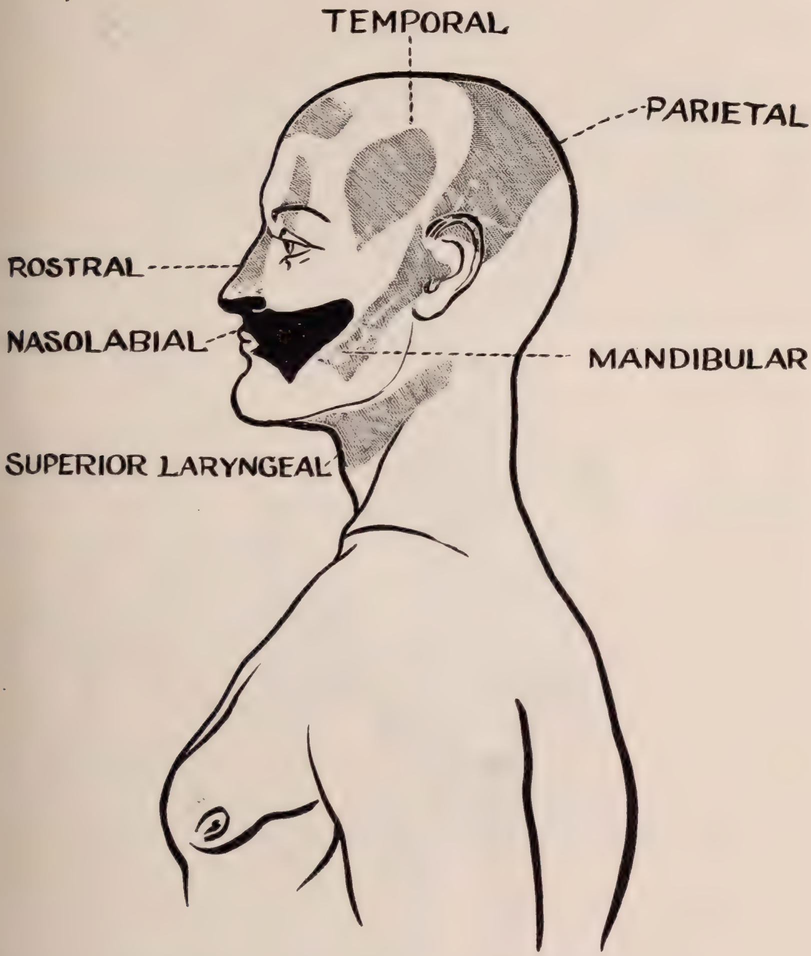
Let us take up first neuralgia minor secondary to diseases of the teeth, and in doing this we must think of all these diseases and see what reflex pains they produce.



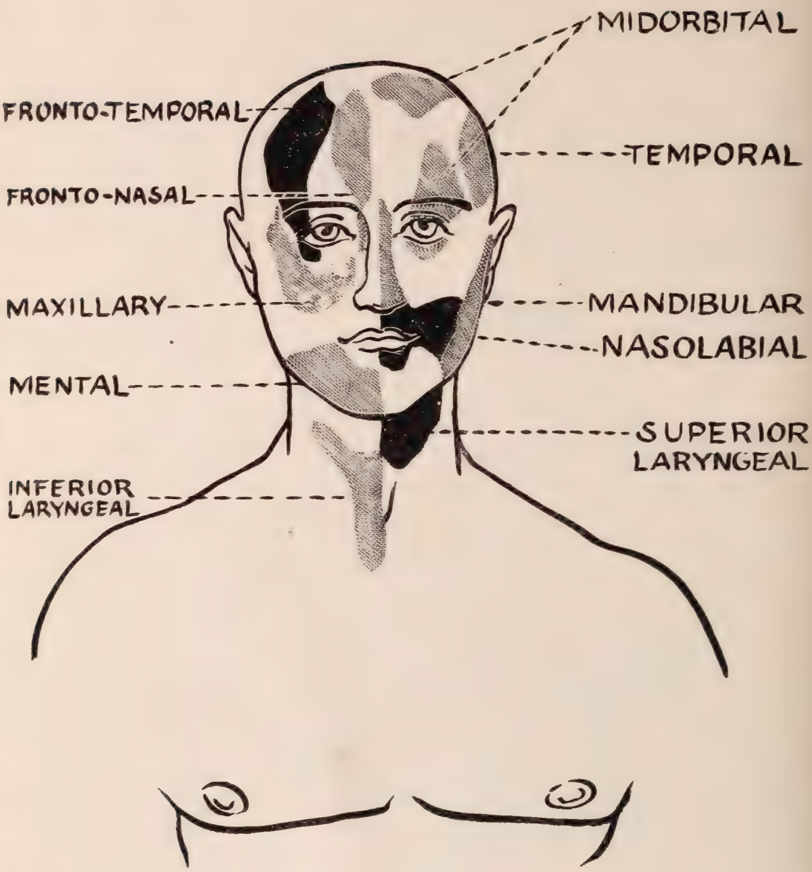
1st—Simple caries, without exposure of the pulp, usually gives one a local pain in the teeth. The pain may dart and shoot, but this darting and shooting is practically confined to the tooth, but as soon as the pulp is exposed we find the pain starting in the tooth and then darting to different portions of the head, face, ear or neck. Eating or taking heat or cold into the mouth stimulates the exposed pulp, increases the pain or starts a paroxysm, and by testing by the method given before more or less tenderness of the skin may be found corresponding to the areas given in the charts; and when such a tender area on the face is reached the patient commonly complains that a touch within these limits seems to make the pain in the tooth worse—but this tenderness does not arise until neuralgia has lasted several hours. For instance: The maximum point in the hyoid area (see chart) is the ear, and this area, according to our table, is particularly associated with the molars of the lower jaw, so we may reason that a patient complaining of neuralgic pain in the ear may be suffering from irritation caused by disease of one of these molars—although they give no appearance of it.

Within the last few weeks a patient was under my care whose case illustrates this point very well. She complained of neuralgia in the left side of the face. The pain had been more or less constant for three months and she dated the start of the pain one week after the extraction of the upper first bicuspid. This fact caught my attention and I at once began to hunt for nerve implication in

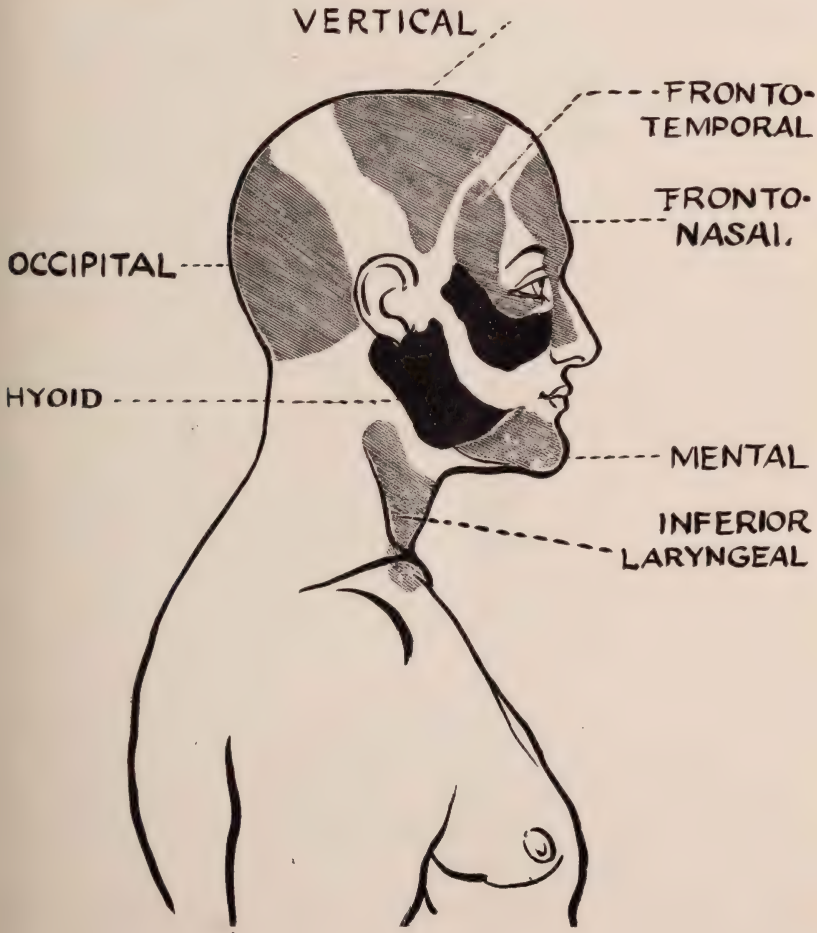




the scar tissue where the tooth had been extracted, but on getting a further history of the case and testing for the sensitive areas I found the hyoid area to be distinctly involved, and remembering the table I at once began to examine the lower left molars and very soon found distinct signs of pulp irritation in the lower left third molar. On opening the tooth I found the pulp partially dead, and when I had treated it and entirely removed the pulp the neuralgia was cured; indeed, from the very first treatment the patient noticed marked lessening of the pain both in frequency and intensity.



We are particularly apt to overlook pulp-stones or other hidden causes for irritation of the pulp, and we must not neglect any possible cause. There may be no toothache, but the constant recurrence of the neuralgic pain with the superficial tenderness in some definite area of the face should direct our attention to certain teeth, among which we shall probably find the affected one. While the pulp is living and inflamed these reflex pains, accompanied by more or less superficial tenderness over these segmental areas, are almost certain to make their appearance at some time or other, but when the pulp is dead and pericementitis or abscess forms the pain is usually local and confined to the tissues about the teeth. If, however, neuralgia appears it differs entirely from that produced by inflammation of the pulp and is more like the pain of tic douloureux, and a superficial tenderness of the various areas is rare. Instead, the pain follows the distribution of the peripheral branches of the fifth nerve. Periosteitis, or alveolar abscess, produces a reflex pain soon becoming neuralgic either by involving the branches of the nerve in the inflamed tissue, in which case the pain radiates up the nerve, or by causing pressure upon the trunk of the nerves of the teeth, and then the pain follows the peripheral distribution of the affected nerve, and is felt in all the teeth supplied by it.



Now let us take up neuralgia secondary to diseases of the eye. Errors of refraction often give rise to pain of neuralgic character, as do numerous diseases involving the eye or optic nerve, but in almost all these diseases the pain and tenderness are over the eyes—the mid-orbital region of the forehead; but if severe they tend to spread both forward to the middle line of the forehead and backward into the temporal fossa and upon the vertex. Disease of the eye sometimes produces tenderness in the teeth but it is shown to be a reflex tenderness when there is a daily change in the position and number of the tender teeth coincident with changes in the condition of the eye.

Third in this list we shall consider neuralgia secondary to ear disease. Only when the middle ear is affected is pain reflex and accompanied by superficial tenderness. For all practical purposes the sensitiveness of the hyoid area would indicate ear trouble, and when the sensitiveness extends to the vertical and temporal areas, as it sometimes does, it is in cases where the tension is so great in the middle ear that the existence of ear trouble can not be overlooked.

Malignant disease of the tongue may cause reflex pain of a neuralgic character in the ear or over the back of the head. If the disease involves the anterior portion of the tongue the reflex pain will be over the mental foramen; if the lateral portion of the tongue the pain will be in the ear and ramus of the lower jaw of the side affected. If the posterior portion of the tongue is affected the pain takes the form of occipital neuralgia.

Nasal affections are rarely intense enough to give rise to pain which may be called neuralgia, but when it does occur this reflex pain appears over the fronto-nasal and mid-orbital areas of the forehead and is quite easily distinguished from other reflex pains.

As I have said before, there are many other diseases to which neuralgia is secondary, but disscussion of them is beyond the scope of this paper.

Treatment.—Find the organ from which the pain arises and treat the condition found there and you will relieve and cure your patient. General constitutional treatment, palliatives, and many of the measures which I gave for the treatment of tic douloureux will help in the cure; but never forget that the first and foremost rule is—find the cause.

A MAN IS FOOLISH TO PRACTICE DENTISTRY.*

BY DR. A. N. STONE, ELGIN, ILL.

Mr. President and Gentlemen: While spending my hay-fever vacation (and money) in the sand belt of northern Michigan, there was forwarded to me a letter from Dr. McCandless, informing me that there was to be a great meeting at Freeport and some star papers by star men, and then asked me to write one.

While I am not responsible for the heading of this paper, I can but acknowledge the truth of it, and will try, in my poor way, to give a few reasons why I think a man is foolish to practice dentistry and possibly some of you may recognize him.

The young man that thinks of taking up the study of dentistry should at least have graduated from our high school; he should be bright and of good address; if so, there are many opportunities and situations that are open and looking for his services from which he could live well and lay by enough to keep him in old age. But he has noticed the dentist, well dressed, with a fine office, and having paid $3 to have a tooth filled he gets the impression that the dentist makes a good deal of money, so leaves a good situation and matriculates in some dental school (he is foolish, but does not know it) for four years, at a cost—with loss of time—of $5,000. At the close of his studies he is down to the cloth (this is a term used in the American game—means you have anted your last chip and only one chance in five of getting the pot), but our D. D. S. at this time has become more foolish, for he thinks the world is at his feet and that he will not even have to stoop to get it. He spends a few weeks looking for a place to locate and finds every place oversupplied, and things begin to take on a different hue, and he finally decides to go back to the town where he was raised a boy. There is where he is very foolish, for he will always be known as Bill, rather than Dr. William, but he can board at home, which is something. Now he has to get an office outfit, but this he can procure of the supply houses at good round figures, and they take a chattel mortgage back, and our dentist is ready for business and only $1,000 in debt. There may be a little fiction in this, but it is founded on the truth. He sits down to await a practice. He has everything to do with, but no one to "do," and business comes very slowly. He begins to think that the people have not learned that he was in town, but he can not advertise, as does his *alma mater,* to do work for the cost of the materials, so there is nothing to do but wait. One day he gets $10, the next he reads the paper. He makes a set of teeth for some old Gimlet. In a day or so back she comes; she can not eat with them, as does her neighbor, who has had hers for years and made by another fellow, so to keep her quiet he makes her another set, and after a few months he may get $20. He treats an old tooth for weeks and finally decides to fill, and, as sometimes occurs, it comes back, troubling. And so it goes from day to day, and still he hates to give up a profession that cost him so much to acquire and continues on until the white hairs appear and there comes to him a few lucid moments, in which he begins to think he has been a fool to have spent a lifetime in the practice of a profession from which he could not live well and lay by enough to keep him in old age. He sees his old schoolmate (not dental school, however) retired from business, living in a fine home, his family riding in an auto, while the dentist lives in a rented flat and wears hand-me-down clothes. When I see men eminent in the profession grown old still bending over the chair to eke out a miserable existence, and looking around me in this society see young men, bright, educated and competent to fill any position in other lines, spending their time in the practice of a profession where their net income will not average with most of the mechanics, it comes a little tough to write it, but, to be honest. I must conclude, after thirty years' experience, that a man is a fool to practice dentistry.

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*Read before the Northern Illinois Dental Society, October, 1903.

PROCEEDINGS OF SOCIETIES.

THE MINNESOTA STATE DENTAL ASSOCIATION.

Discussion of Dr. Eugene S. Talbot's lecture on "The Vaso-Motor System of the Pulp."

Dr. O. A. Weiss:

I do not feel competent to discuss this subject, having given it no special study. Dr. Talbot has spared neither time nor money in carrying on a line of research work upon this subject, and as I always regard it very imprudent for one to assail the deductions obtained by another who has given long and careful study to a subject, without having also given the same study to the subject whereupon he would be entitled to an opinion, I shall simply ask a question or two, rather than attempt a discussion. Dr. Talbot's presentation here this evening is not wholly in accord with the generally accepted belief regarding the vaso-motor system of the pulp. I fail to see wherein there is any evidence in his presentation of a trophic or nutrient function over the enamel. To the best of our belief and understanding at the present time we regard the enamel as a non-living tissue, *i. e.*, a tissue without life. It presents none of the usual characteristics of living tissue; it is devoid of all sensation; there is no growth or repair after development; and embryologically considered we can not account for a nutritive system after development has once taken place, for the enamel organ with Nasmyth's membrane (the enamel builder), atrophies and disappears when the enamel development is completed. With reference to the abscesses in the pulps that Dr. Talbot called attention to in the slides shown, I would like to ask how they heal up? In his lecture this evening he said nothing about the healing of abscesses in the pulp, but a day or two ago in a private discussion of this subject he mentioned it and I do not know whether he intended to speak of that this evening or not. According to our understanding of the healing of abscesses elsewhere in the body a lymphatic system is necessary, and, as there is no lymphatic system in the pulp—at least no one has ever demonstrated such—how, or by what agency does the healing of an abscess in the pulp take place? While we know the pulp to be a very vascular tissue, yet I hardly think that we consider it having an active circulation, as is shown by many pulps dying in teeth, having fillings, without causing any pain; we also find pulps dying, many times without pain, before fillings have been put in. Of course there are some pulps that seem to have great vitality, as all know by experience in devitalizing pulps, but these are the exception rather than the rule.

Dr. Thomas B. Hartzell:

I am very much interested in Dr. Talbot's paper. I have been an earnest student of Dr. Talbot's a good many years, and have derived a great deal of satisfaction from the knowledge I have gained from him, and I feel that Dr. Talbot's example to the young men in the profession is one to be emulated, one which, if followed by a small percentage of the men in the profession of dentistry, would certainly lead to great results in better knowledge of the tissues upon which we operate, and the more thorough treatment of them through this better knowledge. I hope Dr. Talbot has struck a lead that will certainly prove to be true, but I have some doubts in the matter, and I will say now, that in presenting pictures of microscopical objects that we have not had an opportunity of studying from start to finish, that we are entirely dependent upon the essayist for the deductions made. He pointed out dark cell areas that he called nerve fibers. We know nerve fibers will respond to stains that no other tissues will respond to, so we can accept his interpretation of the picture there. But we are accustomed to believe that retrograde change, where the solution of tissue takes place, is due to the operation of bacteria. We find it true in nature, we find it true in the resolution of all organic material on the earth's surface. If we examine tuberculous lungs we find a bacillus, and if you will take a culture and stain it for bacteria you will find them there. Those areas of inflammation pointed out by Dr. Talbot have not been stained for bacteria or our attention would be directed to that fact. How does Dr. Talbot know that that degeneration is not due to bacterial growth going on at those points of inflammation? It could not by any means be regarded as a fact that that retrograde change going on in those pulps shown on the screen is due to nervous influence until bacteria have been excluded from those areas or until an effort has been made to stain for bacteria. When that has been done and there have no bacteria been made evident on those slides then we can accept Dr. Talbot's theory as a reasonable belief, but until that is done I would feel more inclined to believe that it is entirely possible that those areas of degeneration are due to bacterial energy occurring at those points, operating upon the tissue and causing its solution.

Then I have one other point I wish to speak about. (I want to be entirely fair to the essayist and that is the reason I offer this discussion.) Decay occurs upon the surface of the tooth. We know the teeth are composed of solid matter, and the solid portion of the tooth is largely composed of inorganic matter or substance. It is permeated by thousands of small fibrillæ that are connected with the nervous system, but there is a break between the nervous system and the enamel coat; there is no direct continuity of tissue fiber, for enamel is deposited from within outward, and the dentine is deposited from without inward, and the odontoblast is growing further away from the terminal end of the fibrilla. It is scarcely reasonable to me to suppose that the nerve changes represented through the pulp would affect the enamel. I am inclined to believe destruction of enamel is due to the growth and multiplication of bacteria upon the enamel surface. It is entirely rational to believe that the condition of the nervous system, the degenerate condition, could be responsible for the decay of the dentine through vitiated saliva and a general lack of resistance, but I scarcely can see any ground for believing that the nervous system might be responsible for decay taking place on the surface of the tooth or the degeneration of the fibers of the pulp. I hope the essayist will make those points clear.

Dr. E. S. Talbot (essayist):

I thoroughly agree with the last speaker in every particular. I do not think he quite understood the points. I agree the abscess is due to bacteria. There are two distinct conditions. First, the action of the vaso-motor system of the pulp is to dilate and contract the capillaries and hasten abscess by degeneration; second, degeneration of the nerve fibers. In both cases tooth resistance is destroyed, inviting decay, erosion and abrasion. To illustrate: Three years ago I filled a tooth for the wife of a prominent physician (an anterior bicuspid) with gold. In the meantime her health became impaired from visiting a friend sick with tuberculosis. She contracted the disease and is now failing rapidly. Within the year she has had a large cavity appear in the tooth adjoining and also around the gold filling. The resistance through the nervous system and through the pulp has been lost and tooth decay due to the toxic effects and bacteria has caused the condition.

In regard to the point made by Dr. Weiss, I will say I am now working along this line. October 1, 1903, I succeeded in finding cicatricial tissue in the pulp, the result of an old abscess. Whether an abscess will heal in the pulp, I do not know.

MEETING OF THE AMERICAN DENTAL SOCIETY OF EUROPE, HELD AT HAMBURG, GERMANY, APRIL, 1904.

DISCUSSION OF DR. DAY'S PAPER, "THE PREPARATION OF CERTAIN CAVITIES FOR PORCELAIN INLAYS.

Dr. N. S. Jenkins said he was very sorry he had not an opportunity of seeing the paper beforehand and of preparing for its discussion, but he had listened to its reading with great interest. There were two points that specially impressed him. One was the fact that the author naturally assumed that porcelain work was perfectly familiar to all. It was but a little while ago that the question was being discussed as to whether it was admissable to use porcelain for permanent work. That day had completely passed. Everyone acknowledged now the immense importance of the method of porcelain restoration; its importance could not be exaggerated. By that means of treatment dentists were enabled to accomplish results which only a few years ago were absolutely undreamt of. Another point was the admirable manner in which the cavities had been prepared to provide against a danger which was encountered by the beginner in working porcelain at every step. A similar treatment had been suggested some years ago by Dr. Ottolengui, some specimens of which the doctor had sent to the meeting at Stockholm. There was no doubt that that method, as suggested by Dr. Ottolengui, contained in many instances great advantages, and it had been most beautifully carried out in the admirable specimens brought forward by Dr. Day. However, it seemed to Dr. Jenkins, from his own personal experience, that the preparation of a cavity in that manner had one considerable objection. He found it somewhat difficult to get out his gold foil—and he inferred that the work had been done with gold foil.

Dr. Day: "Yes."

Dr. Jenkins said he was himself utterly incapable of doing it at all with platinum foil, but even with gold foil he found a considerable difficulty in removing the matrix without bending it, and it was very seldom in his own practice that he attempted to form a cavity in that way. Experience had taught him to place a very great reliance upon the retaining power of cement. The preparation of the cavity most convenient for the purpose of removing the matrix was a comparatively simple task. It was of the greatest importance to remove the matrix without its being changed in the slightest degree, but there were two essential things in setting the inlay and making it perfectly secure. If any strain was to be brought upon the inlay—and the circumstances where porcelain could be used for masticating surfaces and in compound cavities were innumerable—it was necessary to have considerable depth to the cavity. Unless one adopted the method of Dr. Day, that was an absolutely indispensable condition, and one that could be always obtained. It was not necessary to have that considerable depth of cavity everywhere. One of the beautiful things about porcelain restoration was that the attachment could be obtained where it best suited it in a large compound cavity. It was necessary to have the masticating surfaces with regular walls and the portion of the filling upon which came the strains thick enough and strong enough to bear the force of mastication; but in many instances, especially in incisors and bicuspids, the depth of cavity might be made according to the will of the operator. Sometimes it happened in a bicuspid that in a compound cavity there was very little hold on the labial surface and a very deep hold on the lingual surface, but as a rule it was possible for the operator to get his hold where he desired it, and then if his filling had been perfectly melted he could trust the portion of the cavity which was deepest to hold securely the inlay, although a portion of it might be very shallow. Another point was the necessity of having the inlay perfectly cemented into place. It was often advocated by men who had wide experience in the use of porcelain fillings that the glazed surface on the under side of the filling should be removed with hydrofluoric acid. That was a method which, on his part, he had never greatly cared for. The glaze could be very readily removed from the surface and very much more quickly and neatly by the touch of a small sandpaper disk. By holding the inlay in one hand and by touching the glazed surfaces by the small sandpaper disk held in the other hand, it could very quickly be made rough enough. What seemed to him of far greater importance was to make a number of well-defined undercuts, and he knew of no method of making those undercuts which was anything like so efficient as with a very small diamond disk.

Selecting a portion of the filling which seemed most favorable, and keeping the disk constantly wet with water, the undercuts could be made with a few light touches. Dovetail undercuts could be almost always obtained. After the filling had had its surface slightly roughened with the sandpaper disk, and had been sufficiently and properly dovetailed, it had then to be brought into position and held firmly until the cement had crystallized. Many of the failures which had distressed the operator in the beginning had come from want of care in that particular. The cement should be one with which the user was familiar. If a man was accustomed to the working qualities of a certain cement it was better to continue with that cement than fly to others that he knew not of. Even if he was convinced that another kind of cement was really superior to that which he was using, he had better get his experience elsewhere before he tried the new cement in the mouth. The cement should be mixed to a certain consistency, according to the case, because there were no two cases where it was necessary to have the mixture exactly the same. It was a question of judgment. Taking a thin, broad proximal cavity in an incisor, where hesitation was felt in placing very great force upon the filling in squeezing out the cement, the cement must be used much thinner than was necessary in a restoration of three-quarters of a crown of a molar. In the former case the cement would be used thin, and in the latter case the conditions might be such that one did not wish to apply the cofferdam, and accordingly needed to use the cement distinctly thicker, and therefore must expect it to crystallize much more rapidly. It was essential that every particle of the surplus cement should be pressed out of the cavity, and that could be done only by the exercise of a little dexterity and of constant care. Having mixed the cement to its proper consistency, and having smeared a very minute portion of the cement on the interior of the cavity, and having also placed a small portion of cement upon the under side of the inlay, it should be quickly but gently carried into its place. The final pressure should not be sudden, but gently and with a firm pressure the inlay should be brought down into its position, the surplus being carefully wiped away. It was important to observe that the inlay was exactly in the position one desired, and it had then to be held in that position. He remembered not long ago his attention was for an instant called away from a great compound filling he was setting. It was one for which he had to mix the cement more stiffly than was usually done. He only turned away for a short time, and when he turned round again he found the filling was extending a considerable distance from the cavity, the soft cement having taken advantage of the opportunity to press the inlay out of place. He immediately pressed it back again, and was astonished to find how great was the elasticity of the cement. It was a very great advantage, especially in proximal cavities, after all the preparations had been made and the cement carefully removed from the edges, to use a piece of floss silk in order to give the final pressure. There was an elastic property in the silk which seemed to be especially valuable in such cases, and it appeared to press out more readily the least portion of cement than did pressure with a steel or wooden instrument or tape. Tape was useful under some circumstances, but obscured the view of the cavity so that it was not possible readily to see if the inlay had been pressed in perfectly true to its position. But with a piece of floss silk resting firmly, with an elastic pressure against the inlay, the last vestiges of cement were seen slowly oozing out and the inlay was brought exactly into place.

Dr. G. C. Daboll desired some information from Dr. Jenkins in relation to the color of the cement which he used. His own experience in porcelain inlays was that a pure white cement gave the least change in color. He had tried repeatedly to mix the cement so as to get a shade in agreement with the color of the teeth, but from the opaque character of the inlay he had had no great success in that direction, and he therefore desired to know what Dr. Jenkins used in the way of color of the cement in setting his inlays.

The President thought the question would come better in connection with another paper which was to be read later on in the meeting.

Dr. H. C. Merrill said Dr. Day's method of locking the porcelain in had interested him very much, and he would like to hear Dr. Day say something further about the matter.

Dr. W. Mitchell congratulated himself on having had an opportunity of witnessing the results of some of the operations the author had described. In his view it was a very practical method of preparing cavities, showing the perfect mechanical working out of a scientific physical proposition. There was no question but what, in the preparation of a cavity on the lines suggested by Dr. Day, the least reliance had to be placed upon cement. He had tried relying upon cement and had tried cavities on the lines Dr. Day had set down, though not working them out to quite the refined perfection he had done, and in the latter case had found that less reliance had to be placed on the cement. It was well known that cements did not work the same one time as at another. Temperature modified them and mixture modified them, and the cements themselves were not always uniform. That could not be said of a cavity which was practically under the control of the operator, and that being the case he thought it was an illustration of something that was going to help dentists very much in becoming successful with that class of operations.

Dr. Kirk Davenport said he had had a long and great experience in what was, after all, almost a new operation, as he had had the privilege of being with Dr. Jenkins and stealing a good deal of his secondary thunder. He was specially interested in Dr. Day's paper, as he had worked almost on the same line, although he had not done so of late years. He had found that cement was a weak method of fastening, and that in four or five years a line did appear, however slight it might be. Then the enamel was found to be chipping away, which was really heartbreaking. He saw very great possibilities in Dr. Day's method. He presumed the illustrations brought forward were of a method, and not necessarily of actual cases. For instance, it appeared to him that in molar cavities, by using the method and going still further, sacrificing or taking away the weak walls and getting a slant in anterior cavities—slanting down, for instance, from the proximal edge and slanting back to get a still further retention, and then building up the enamel—a very great advantage was obtained. In simpler cavities, and especially in incisors, he doubted the wisdom of the method, and would criticise it as being risky. He believed that a combination of Dr. Day's method with others' methods would have great possibilities.

Dr. Charles Rathbun said that in the typical bicuspid cavity, which was by far the largest type of cavity met with, the method necessitated the sacrifice of draw-work; that was to say, the dovetail was obtained in the tooth, and yet it was allowed to draw along the line of the long axis of the tooth. It was a question in his mind whether, in such a case, there was a gain or a loss, because, in his opinion, the crowning glory of an inlay was due to the fact that the wall could be kept intact. Taking such a case as he had mentioned, a case of a proximal cavity of a bicuspid with the decay approaching to the buccal and lingual surface, but with the cornus still intact, if the inlay was drawn from the side the cornu was kept, but if drawn from the end it was lost. Whether it was an advantage or not he did not know.

DR. DAY asked what was meant by a cornu.

DR. RATHBUN said that if a proximal cavity in a bicuspid was cut away sufficiently for the inlay to draw on the line of the tooth, the points of the cornula must be cut away parallel to the extreme lateral tension of the cavity. He thought that Dr. Day's idea of depending as much or more on the tension as on the cement was worthy of all praise.

DR. BURT (Detroit) said that he had done some inlay work along the line referred to by Dr. Day, though perhaps one of his methods might be new. He depended largely on the use of cement, and had used a light colored cement for keeping the color. He had been using a medium for investing the matrix of an inlay, a material which would allow the flowing of porcelain into it without the porcelain fusing with the bubble. Taking a matrix for a portion of inlay, and making a slight puncture or groove and filling the matrix, and fusing carefully, it would be found when ready to set and the matrix removed that there was a spur which was of good assistance in holding the inlay in place. In cutting the cavity slightly, by watching carefully the lines it was possible to do it without upsetting the lines of the porcelain.

THE PRESIDENT said he understood that Dr. Burt, after having the cavity shaped as he desired, then operated on the matrix so as to obtain a retaining form, which he afterward made in the cavity.

DR. BURT said that was so.

THE PRESIDENT said that Dr. Griswold had an interesting method of preparing cavities and special treatment incidental to obtaining the matrix, which was the important thing in the matter after the preparation, and perhaps Dr. Griswold might say a word or two on the subject.

DR. WILLIAM M. GRISWOLD agreed in many points with Dr.

Day, especially in preparing the cavity so that it did not depend so much upon the cement; but he thought that the surface of the base ought to be made to equal the surface which was exposed in the direct line of stress, and that the walls should be nearly parallel. It seemed to him that the base of the molar shown by Dr. Day was very round, and the enamel at the gingival margin would be very sharp, and that in most proximal cavities the parts of decay would extend so that that method of preparation would hardly apply in the majority of cases.

Dr. William Sachs said he had had a very large experience with porcelain fillings, having commenced experimenting with large fillings fifteen years ago, when he recommended taking the impressions with gold foil, as was done today. In his view it was a mistake to depend upon cement, and equally it was a mistake to depend upon the preparation of the cavity or upon the undercuts. All those points had to be taken into consideration, because if one point was neglected there was sure to be a failure. Every step had to be made as carefully as possible, and every step taken together might lead to success. In preparing his cavities he had lately acted somewhat differently from the majority of operators. Taking, for instance, the proximal cavity in an incisor or cuspid, he tried to separate them as widely as possible by means of cotton or gutta percha. He never made thin rims and borders on the cavity, because the thinner the border of the cavity was made the thinner the rim of the porcelain filling would be, and both would easily chip. He therefore made that as broad as possible and the inlay as deep as it was possible to make it without bending the matrix in removing it from the cavity. After the gold was pressed into the cavity he generally put in a little hard wax; after waiting a few minutes put cold water on it and tried to remove it. It would easily burn out before the procelain powder was placed in the matrix. By making the borders broad an inlay was obtained with very strong borders and a kind of shoulder which went directly into the cavity; and that, in connection with good undercuts and well-prepared cement, would give the best results possible. That was his experience and he thought also the experience of Dr. Jenkins.

The President thought in connection with the preparation there might be something in the appliances which were used and the manner in which the cavities were prepared, as well as the shape of them. In connection with the proximal cavities of molars and bicuspids, regardless of whether the box shape suggested by Dr. Day was adopted or not, there was one thing all would agree upon in connection with the preparation of those cavities, and that was to have the base of the cavities so that the under side of the walls would be deeper than the gingival margin exteriorly. In that way, no matter how hard the filling was pressed upon, it could not be pressed out of the cavity. By having the cavity deeper on the inside than the external margins would very largely prevent the filling becoming dislodged by the force of mastication. He thought Dr. Jenkins' objection to the examples arose from the fact that they had been made in an exaggerated way in order to show the principle rather than to illustrate the actual operation. In connection with the preparation of cavities for inlays, the desire was, of course, not to get undercuts. In using excavators and burs the tendency was to travel into the softer material, and there were places which had to be filled up with gutta percha or cement in order to get the matrix or obtain an impression. The trouble in connection with stones was that it was difficult to get stones small enough to do the work. If burs could be obtained and used with carborundum powder it would probably save considerable time and be much more comfortable to the patient, and enable cavities to be prepared which were a draw in themselves. The tendency was to get a cavity that would have a retaining form, and that was a thing which it was desired to obviate in the initial stage. He had had some copper points made, which were simply put on to ordinary worn-out burs, and had found them useful. Dr. Day, instead of using those points, used old, wornout burs, which would cut enamel, but which would not cut the dentine. It was well known that by taking a wornout diamond disk and giving it a slight roughening in order to hold the carborundum it would cut faster than the diamond disk itself.

Dr. R. D. McBride believed that the failure in porcelain work was principally due to lack of adhesion between the two substances, not so much between the porcelain and cement. For some time past he had been roughening the inner surfaces of the cavity, and for that purpose used a very small wheel bur. He also roughened the surface of the porcelain. By that means he obtained the greatest possible strength, and failure along that line had been greatly decreased. He had experimented on one or two fillings in extracted teeth, and was much pleased with the great retaining force the cement had when the cavities were roughened.

MADAME D. DUIKELACKER PETERSON pointed out that there was a new porcelain filling which Dr. Ascher, of Berlin, was using. It was very much like cement and was practically the same as the porcelain filling. It might be that the filling could be combined with the cement and the two used as a porcelain inlay. If the cement of Dr. Ascher had the same qualities as a porcelain inlay it might be of very great advantage. The difficulty now was with the color. When Dr. Ascher first exhibited the method last year in Berlin it was not successful, but he had so improved it that he now hoped soon to put it on the market. It could be taken as a cement and made into a perfect inlay.

DR. E. D. BARROWS asked Dr. Day how he would get out one of the inlays in case decay occurred.

DR. E. F. DAY, in replying to the discussion, thanked the members for the criticism they had made on the paper, especially thanking Dr. Jenkins for his general remarks upon the question. Dr. Jenkins was the father of inlays and all the work that had been done had been done with his material. Certainly if he had had his paper finished in time he would have sent it to Dr. Jenkins for his perusal. Dr. Jenkins had touched on the difficulty of removing the matrix. The cavity was so prepared that if it were possible to look down into it from the top every point of the cavity would be seen; there would be a perfect perspective as it had been called. That could be seen, of course, with a mirror. He first made a trial by pressing in the gold with Japanese paper and burnishers after getting the proper undercuts, then filling up with wax and burnishing with burnishers. In a cavity properly prepared on those lines the filling would pull out and go back as perfectly as a die and counter die. There was no trouble about it at all. Dr. Jenkins had kindly given many hints on the setting of the inlays which were very valuable and very much to the point. With regard to the taking out of the impression, he might mention that he filled it with wax and by sticking an excavator into the wax it could be easily pulled out, especially with a little oil in the cavity to prevent the wax sticking. Dr. Mitchell had seen his work all along, and he was very pleased with his tribute with regard to it. There was no doubt that cements were weak. With regard to exaggeration, of course, he had exaggerated the illustrations slightly because there was no doubt in some cases he should not cut so much. He had to exaggerate, however, to press home his points, and therefore the exaggeration had to be allowed for. It would be noticed that all the cavities had been prepared on live teeth. By working on pulpless teeth it was possible to get any amount of undercut or dovetail, or get anchorage into the pulp chamber. He did not agree with Dr. Davenport about the method being risky on incisors. He did not think any of the walls would crack off from the bite, but, still, it was a matter of opinion. If it applied to inlays it certainly applied to gold filling.

Dr. K. A. Davenport said that what he referred to in the molar was not the question of the deeper part. It was on the occlusal surface, cutting the enamel in such a way that it butted on and actually built up the contour, cutting it back and over, so that it increased the base to a very great extent.

Dr. Day thought that if it was possible to get a depth of porcelain to give strength it would be a very good idea. He thought Dr. Rathbun's remark about a bicuspid cavity was right. In many cases where there was extensive decay in between the teeth, to cut the cavity flaring, so that it was possible to look down from the top and see every part, it would be necessary to destroy the cusps or what he had called the cornula. He thought in a cavity he could get under-cutting in such a way by making his lines, not parallel but cone shaped, no matter how extensive the decay was in between the teeth.

Dr. Rathbun asked whether a perspective could be obtained?

Dr. Day said absolutely, and he would do one and send it round to Dr. Rathbun. Getting a spur on the matrix was a very good idea. With regard to Dr. Griswold's remarks about the walls on the molar tooth, probably he was right, and that might have been cut somewhat deeper, but he did not think the strain came immediately on that. He thought the strain was taken up by the cement more or less and was not on the little bit of enamel, and it would want considerable cutting to get that out. He quite admitted that it would be a good point to prepare the cervical edge properly. The president's remarks about the cavities being deeper at the gingival margin he endorsed. He used the copper points which the president had shown and also old fissure burs referred to by the president, and rat-tail finishing burs, which could be put into a cavity and showed by the inclination of the handpiece whether there was a perspective in the cavity or not. In other words, instead of cutting under the cut was made flaring; the cut was made more on the top than below. Roughening the teeth was a very good idea. With regard to getting out an inlay, in such a case he should not attempt to get it out, because if the tooth decayed again he should fill the place which had decayed either with another inlay or a gold filling. Dr. Jenkin's enamel could be drilled out or it would be possible to break away the enamel walls and chip it out, but he did not know, as he had never had to get one out.

Dr. G. Martin said that with regard to carborundum flour used in connection with wheels, he had found every powder placed on the market was prepared between rolls and did not give sufficient cutting surface as if prepared under a blow. He advocated powdering the carborundum oneself, and if that was done it would be found to be a material that would cut ten times as fast as the carborundum flour on the market.

The President considered that to be a very useful suggestion. The smaller the inlays the more difficult it was to cut retaining grooves in them. and anything that would help in that particular would be exceedingly useful.

Dr. Burt suggested using an iron disk instead of copper. The copper disk used with carborundum powder frequently left a dark stain which it was very difficult to remove.

Dr. Haselden said that if the disk was kept moistened with water the whole time there was no difficulty in removing the powder, but if dry, grit was worked into the substance of the inlay, and it was very difficult or impossible to get it out.

Dr. W. Mitchell agreed with Dr. Haselden that it was very difficult to get the marks out if the disk was allowed to get dry. The copper was carried into the enamel and not easily removed.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held December 21, 1903, with the president, Dr. Fred B. Noyes, in the chair.

Dr. H. L. Simmons read a paper on "Facial Neuralgia."

DISCUSSION.

Dr. A. H. Peck:

I am indeed glad to have had the opportunity to listen to this very excellent paper on this important subject, about which the majority of us know none too much. The essayist has presented the subject in a clear, concise manner, and if we study the paper carefully I am sure we will all be greatly benefitted thereby.

I find nothing of special note in the paper with which to disagree. Possibly in one respect this is unfortunate, for frequently when those taking part in a discussion of this character disagree, the time is more profitably occupied. I am glad the essayist has presented this chart exhibiting the various areas of pain in facial neuralgias. If we become thoroughly acquainted with this we will find it a great aid in our endeavor to locate the cause of the trouble, or in differential diagnosis of neuralgias. However, this chart is by no means an absolutely safe guide.

If time were not an element I would gladly discuss this subject from a general standpoint, and try to show wherein many manifestations of pain in the face and head, many of them justly called facial neuralgias, have their origin in portions of the body very remote from this region. As this would require an essay in itself I concluded to discuss the subject from a diagnostic standpoint and present, as I understand them, the principal differential diagnostic points of dental neuralgias and those of more general and constitutional origin.

The fact that the dental pulp does not possess the sense of touch, which is a localizing sense, renders it very difficult, in many cases, to locate the actual seat of dental neuralgias. The pulp, like other internal organs of the body, is not intended naturally to come in contact with foreign substances from without, and is thus not supplied by the human economy with the sense of touch.

Pain from any diseased condition of the teeth is liable to be manifested in any part of the face other than the immediate vicinity of the diseased tooth; in fact, it may be set down as a rule that it will be manifested at some point more or less remote from the tooth, the pulp of which is diseased, rather than being manifested in the tooth itself. This will ever remain a most important factor in practice in connection with the diagnosis of dental neuralgias. This is also true of the pains of hyperemic or inflamed pulps.

The pains which are manifested in the facial nerves, or the fifth pair of nerves, result from a great variety of causes. Not always, by any means, are they the result of diseased conditions of the pulps themselves. But as frequently, perhaps, they are the result of diseased conditions of other portions of the system, or of some portion of the nerve trunk itself. This is another fact, or condition, which is very important, and one which must be constantly borne in mind in the endeavor to locate the cause of facial neuralgias.

The pains which are manifested in facial neuralgias are more frequently in connection with the second and third branches of the fifth pair of nerves, but are not always confined to these branches. The first branch of this set of nerves is rather frequently found to be the seat of the pains. Whenever the pain is manifested in the first branch, it is usually of systemic or constitutional causes. These may be termed occult causes, which means those that can not be seen, or hidden causes, as a diseased condition of a nerve trunk, or some adhesion binding it down in the process of recovery from an injury; while in connection with neuralgias arising from diseased conditions of pulps, the pains are almost invariably manifested in the second and third divisions. They may be in one or the other or in both, and are nearly always confined to the same side of the face in which the diseased tooth occurs, but in rare instances may be manifested in the opposite side of the face; while the pains of neuralgias from occult causes, systemic or constitutional, may be manifested in any portion of these branches and on either side of the face.

Pains occasioned by dental neuralgias are by no means confined to the face. If of long standing, they frequently extend down the side of the neck, being manifested in various portions of the chest, and not infrequently in the arms. The ear, also, is a frequent location for the manifestation of dental neuralgic pains. These pains are not necessarily constant, and most frequently are not, they being of a paroxysmal character, the paroxysms being inaugurated after a hearty meal, or from taking cold and hot drinks, thus subjecting the teeth to severe thermal changes.

True dental neuralgias usually come on slowly, gradually, while in nearly all cases from systemic or constitutional causes the pains are brought on very suddenly. The pains from dental neuralgias are aggravated a great deal at night, more so than during the day, when the individual is on his feet and moving actively about. At night the individual assumes the recumbent position, and the pressure of the blood throughout the face and various other portions of the head excites the paroxysms of pain; while the pains in connection with systemic causes may be constant, during the day as well as the night, and especially is this true if the pains are being manifested in some part other than the head. If the pains from constitutional causes are being manifested in the region of the head they, also, will be more severe, as a rule, when the individual assumes the recumbent position.

A difference of much importance in connection with the differential diagnosis of pains manifested from causes occult and those of dental neuralgias is this: Those of neuralgias from the former causes are, in most instances, manifested in the surface of the skin, the latter being exceedingly tender because of the diseased condition of the nerves, the slightest pressure upon its surface causing severe pain. In connection with neuralgias, which are purely dental, this is rarely ever true. The pains at various parts about the face or gums are seldom manifested in the surface, but are almost invariably deep-seated, being manifested deeply within the parts. Occasionally a tenderness will be manifested in the surface of the mucous membrane in dental neuralgia especially opposite the inferior dental foramen, where the nerve passes out of the body of the bone, and also, occasionally, about the region of the infraorbital foramen. But these manifestations are of rare occurrence.

Individuals of a neurasthenic diathesis are specially subject to neuralgias. Many are born, seemingly, with this diathesis liability to diseased conditions of the nerves throughout the system. However, this condition may be acquired later on in life. Anemic individuals are especially liable to neuralgias, not only dental, but most any form of systemic origin. And those living in malarial districts are especially liable to neuralgias of various characters.

Dr. Thomas L. Gilmer was called upon to discuss the paper.

He said: Mr. President—This is certainly an interesting subject, and I wish to congratulate the essayist on the excellent manner in which he has presented it. I do not think we have ever had the subject presented before this Society so ably before. It is a good thing for us occasionally to take up subjects of this kind that are not so strictly dental as some others with which we have to deal.

The illustrations accompanying this paper as excellent. I wish I could have had a copy of the paper beforehand, so as to read it, and then I would be able to discuss it more intelligently.

There is only one phase of the subject that I desire to speak, namely, *tic douloureux.* It is a disease that elicits the sympathies of the dentist, if he has any, more strongly than any other disease he is called upon to treat. I have seen a great many cases of tic douloureux in my professional career; I have treated a number of them surgically and otherwise with varying success. In a few cases I have been able to effect permanent cures. I believe the essayist took the position that there had not been any permanent cures, but there are a few cases which have been permanently cured by one sort of treatment or another. It is quite true, however, that most of the cases which are relieved by surgical treatment are cured only for a period varying from two to four or five years, and sometimes a shorter period than that. If we find the pain is located in any one branch, there is a possibility of bringing about a cure by resection of the nerve trunk. If a permanent cure follows re-section it indicates that the pathological condition is located in a branch of the nerve outside of the brain. If the pain is felt in more than one branch we can safely conclude the disease is central, and any operation we may perform outside of the brain will only afford temporary relief. Patients willingly submit themselves to peripheral operations even if only temporary relief is promised. Indeed, when these cases become desperate, as they will do as years advance, patients willingly submit to the operation for removal of the Gasserian ganglion, notwithstanding the mortality which stares them in the face. As the essayist has said the mortality following this operation is not as great as it was formerly, but it is nevertheless a formidable operation.

There was one statement made in the paper that I should like to correct. If I understood the essayist correctly, he stated that there was only one sure method of cure, namely, the removal of the Gasserian ganglion. I have been told by Dr. McArthur and by Dr. Andrews Sr., of this city, who have done a great many of these operations, that the removal of the Gasserian ganglion is followed generally only by a temporary cure. It seems dreadful to think of it, but in most cases in which even the Gasserian ganglion has been removed, the pain has recurred in the course of a number of years. The cure lasts much longer than if only one or the other branch of the nerve has been removed, that is, external to the forameni.

Dana, of New York, has given a great deal of attention to this subject, and in these cases he resorts to internal medication, using strychnia in massive doses, and quite a few cases have been recorded as cures up to several years ago, and recently he has reiterated his confidence in effecting permanent cures from large doses of this drug. Previous to operation medication should be first tried.

Dr. J. W. Slonaker:

I would like to relate a case which, I think, has been permanently cured. The case came into my hands in October. A lady had been under the care of Dr. John S. Marshall, eight years ago, for so-called tic douloureux. Dr. Marshall, as most of you know, is a very excellent surgeon. He extracted one or two teeth at different times, covering a period of four years, with slight relief following the extraction. Soon after the pain recurred. At the end of four years he had taken out all of the teeth in the upper jaw, and all on the left side in the lower jaw. When the patient came to me she had only the six lower anterior teeth. She had worn a plate in the upper jaw for four years. Three skiagraphic pictures were taken of the face, and they could not discover any tooth structure remaining in the upper jaw. She insisted that she had an upper wisdom tooth, but there was no sign of it in the skiagraph. The patient manifested symptoms of genuine tic douloureux. As Dr. Simmons expressed it, it seemed to her as though a red hot electric needle was stuck into the face up to the eye; there was pain on that side of the face, undoubtedly located in the superior maxilla. Upon examinning the case carefully, I found on the left side, bucally of the jaw, a slight enlargement high up, which was not on the other side. Examining the mouth, I found back of the tuberosity a very small opening. I followed it up nearly an inch in a buccal direction, touching something very hard, which appeared to me more like a tooth than bone. I advised operation, which was consented to. I opened the plates across the mouth at that region where the small opening was, followed it up nearly one inch, cutting away the tuberosity, and at last I struck a tooth, which I removed. It was a wisdom tooth, located bucally of the arch. For five weeks I treated the wound, and it healed thoroughly. Occasionally, if the woman touches her face or does something of that kind, she will start a little pain; but for the last eight weeks she has been able to go to bed at nine or ten o'clock at night and sleep soundly all night, a thing she had not done for many years.

DR. J. E. KEEFE:

A few years ago, Mr. Bennett, of London, published an interesting article, calling attention to the use of osmic acid for the cure of tic douloureux. He recommended injecting the acid into the inferior dental, the infra orbital and supra orbital branches of the fifth nerve.

Mr. Bennett reported several cases on which he had operated, in one of which the inferior divisions had been dissected at the base. Notwithstanding this operation, the pain recurred at intervals and relief was obtained only after an operation by injecting the osmic acid.

Dr. J. B. Murphy, of this city has operated on several cases of tic douloureux, using the osmic acid treatment. I had the privilege of witnessing some of these operations, the results of which were most remarkable. He exposed the inferior dental nerve by making an incision in the gum tissues and injecting a few drops of the acid into the exposed nerve. The infra orbital branch was also exposed from the inside and the acid injected. The supra orbital branch was the only one exposed by an incision from the outside, and the scar was scarcely perceptible after a month. We do not know how this treatment cures, nor how far the acid penetrates into the nerve. Dr. Murphy is at present conducting some experiments on dogs and hopes to ascertain what physiological change occurs in the nerve tissues. The results of these experiments will be interesting when published.

This treatment, it seems to me, is a very simple one and thus far it has been most efficacious.

I wish to take this opportunity to compliment Dr. Simmons on the very excellent paper he presented and it is my belief that the chart systems to which he called attention will be of great value to us in the future.

Dr. George B. Perry:

I noticed in the paper this evening that the author did not mention what seems to be a rather common cause of so-called facial neuralgia—in the lower jaw particularly, and the arch, that is, the formation of a bony tumor or osteoma on the apex of the root of the second bicuspid.

About two years ago a gentleman was brought to me who had an area of about the size of a silver quarter to the left of the median line in the lower jaw which was dead to any sense of touch. He had been suffering excruciatingly for three weeks, and had visited one of the neurologists in this city, who told him that he knew of no cure for his condition. He asked him how long he thought it would take for the condition to wear itself away, and he replied, "Approximately about three months." The left lower first molar had a gold crown, and I thought possibly the root had not been thoroughly filled; that there was a constricted canal, and the broach was not carried to the bottom, and that this was possibly the cause of the trouble. I removed the crown and went down through the roots as thoroughly as I could, without affording him any relief. Then I thought possibly the cause of the trouble was a bony tumor on the end of the root of the second bicuspid. In the meantime I had the first molar extracted, and while the second bicuspid was a good tooth, without any caries being visible, I felt it was necessary to have it extracted to see if that was not the real cause of the trouble. I explained the situation to the patient, and he consented to have the tooth extracted. The tooth was extracted and the socket treated the same as the other, with cotton dipped in a solution of menthol, and in less than three weeks from the time he came to me the pain was entirely relieved. Sensation returned to this paralyzed spot, since which time he has had no recurrence.

Dr. Simmons (closing the discussion):

There is hardly anything I wish to say, except to thank the gentlemen for the interest they have taken in my paper, and especially those who have discussed it. Several points of interest have been brought out that I did not touch upon in regard to tic douloureux. I did not say much about this form of the disease, because only a few of us have the ability to carry out radical treatment. The reflex neuralgias, however, we must, as dentists, be prepared to treat, and the points in differential diagnosis, as brought out by Dr. Peck, if borne in mind, will be of great assistance to us.

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Devoted to the Advancement of Dental Science.

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EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE FOURTH INTERNATIONAL DENTAL CONGRESS.

The preparation for the coming Congress, August 29 to September 3, is progressing in a manner to promise a most successful meeting, and we urge the attention of every ethical practitioner to the necessity of doing his full share in making this meeting of dentists one of the most memorable in the history of the world. Our only fear is that many of the dentists of the United States—upon whom the chief burden of the Congress must fall—do not sufficiently realize the full significance of what a Congress is. The profession is comparatively young yet, and this Congress is only the fourth ever held by dentists. They are accustomed to local, State, or National meetings, and are too much inclined to look at such events from a circumscribed point of view. But one of the chief benefits to be gained from an international Congress is to broaden out the mental horizon, and give a wider grasp of the larger questions affecting the welfare of the profession. We trust that our fellow countrymen will take hold of this meeting with their customary energy, and carry it out in the broadest and most liberal spirit, to the end that a permanent impetus for good shall be given the profession not only of this country but throughout the world.

THE ETHICS OF SPECIALISM.

In answer to our Editorial in the May number on this subject we have had some very vigorous expressions of opinion, a few of which are worth repeating. One correspondent says: "It is my opinion, and I wish to emphatically state it, that any general practitioner wishing to practice a specialty should discontinue general practice and devote his time exclusively to that specialty, particularly if he wishes to advertise his specialty. By advertising his specialty and continuing in general practice he takes advantage of his fellow practitioners. There should be no equivocation upon this point; ethics of specialism should mean the same as all ethics—conduct toward a fellow practitioner that is upright from all points of view. Any leniency upon this question will lead to the same conditions which prevail in the profession of medicine, where they have specialists who treat everything. Place the standard high upon all points of ethics, and hew to the line. We as a profession are altogether too tolerant as to infractions of ethics, and until we arrive at a point where we both love and fear one another we need not hope to make much progress in educating the public as to the difference between a gentleman practicing his profession for the public benefit, and a quack conducting his affairs from a purely selfish motive."

This is rather strong language, and is worthy of consideration. We are desirous of presenting all sides of this question and if any of our readers have other points of view we shall be glad to present their arguments.

THE EDITOR'S DESK.

BEAUTY IN NATURE.

I often wonder if we get the full measure of happiness intended for us through the medium of the marvelous beauty provided by mother nature. We are in such a hurry in these days, and so occupied with what we are pleased to call the material things of life that we do not sufficiently study the wondrous handicraft that grows up around us on all sides, even in the midst of city life. We are so absorbed in other matters that we are constantly passing by without a thought the very things that should most appeal to us in our search for the sublime and the beautiful. There is enough of beauty in a single tree to overwhelm an ordinary mortal with wonder, awe and reverence, if he but took the pains to study its outlines, its varying forms, its brilliant hues, and its never ending change from morn till night and night till morn. This is particularly true at this season of the year when all of nature is fairly bursting with life and energy. And what a carpet the earth and air have woven for the feet of man! Is there anything like grass to walk upon, or look upon, or lie upon? And what shall we say of the lakes, and rivers, and mountains, and valleys, each with its own individuality, each with its own tradition, and its own atmosphere? We do not study these things enough. We do not enter into the spirit of the marvelous miracle that nature is working before our very eyes at every turn of the tide, at every revolution of the cycle of the seasons. And we fall far short of getting the most there is in life when we fail to accept the bounty that nature has provided for us.

REVIEWS AND ABSTRACTS.

Essay on the Irregularities of the Teeth, with Special Reference to a Theory of Causation and the Principles of Prevention and Treatment. By J. Sim Wallace, D. Sc., M. D., L. D. S.; Hon. Dental Surgeon to the West End Hospital for Nervous Diseases, and Assistant Dental Surgeon, National Dental Hospital, W. 162 pages. Cloth. Published by The Dental Manufacturing Co., Limited, London, England.

This book is made up of essays from the *Journal of the British Dental Association,* and the *Dental Record,* so that the reader of our periodical literature is already familiar with it. The author goes very fully into the causes of irregularities, devoting more than half the work to this topic. He also takes occasion to emphasize his well-known theory on the prevention of irregularity as it is affected by mastication. Dr. Wallace writes very convincingly on this topic, and his conclusions are well worth studying. The plan of the present work precludes an exhaustive consideration of the treatment of irregularities, and this section is limited to 32 pages, with very few illustrations. As a suggestive study of the subject the book will well repay reading.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

Superannuate the Articulator:—Superannuate the articulator and the resulting gain in adaptation and artistic effect will be surprising. MARK G. McELHINNEY, Ottawa, Canada.

Correction:—In Dr. Taylor's article on page 508 May REVIEW, the word "kindness" should have been "directness," so that the sentence would read: "Directness is a great economizer of time and distress."

Pulp-Canal Dressing:—Mix iodoform and simple cerate to a paste and add a few drops of oil of cinnamon to disguise the odor. In the paste form it is convenient, easily controlled and will be found useful in certain pulp-canals. HOMER ALMON.

Treating Gingivitis:—If you fail to cure a case of gingivitis or kindred disease, place the rubber dam over the teeth involved and mechanically and chemically clean all the surfaces at the point of infection. By adopting this method success will crown your efforts.

C. R. TAYLOR, Streator, Ill.

Argyrol:—As an application to inflamed gums after the removal of calculus try argyrol. It is very rapidly absorbed into the tissues, and does not permanently stain the teeth like the nitrate of silver. A small piece of the crystal placed in a pyorrhea pocket will be found an excellent dressing.

Extracting Frail Roots:—Frequently frail roots can be filled with a quick-setting cement just before extracting. This lessens the danger of crushing them with the forceps, but, of course, time must be allowed for the cement to set. Care should be taken to avoid forcing the cement beyond the apex.

ABRAHAM M. WAAS, Philadelphia, Pa.

To Prevent Rubber Dam Leaking:—It will sometimes be found that after applying a clamp to a lower molar for retaining the rubber dam, the saliva will work up past the dam and endanger the operation. This may frequently be prevented by packing a small roll of cotton between the jaw of the clamp and the dam, thus holding the dam tight against the gum.

To Determine the Shade of Facings:—Keep on hand a small piece of plate gold, with a slot cut through it large enough to admit the pins of the facing. When selecting a facing place the gold in position on the back and note the change in color produced by the gold. The edges of the gold should not extend beyond the edges of the facing. If platinum is employed for backing, a thin piece can be prepared in the same manner.

R. L. Graber, Peoria, Ill.

Method of Cleaning and Polishing German Silver:—German silver is very often used in dentistry, but is rather hard to swage and polish. While working this metal I anneal it by heating to a red heat and plunging in a solution of oxalic acid. This cleans and softens the metal better than any method I know of. When the appliance is ready to polish I employ Burneshine or Solarine instead of pumice or whiting. I accidently discovered this method and find it effective. Try it.

C. J. Hadley, Chicago.

Burns from Carbolic Acid:—In using carbolic acid about the mouth it sometimes happens that the agent gets on the membrane beyond the intended point of application, or even occasionally on the lips or face of the patient. This results in a bad burn unless immediate means of counteracting it are at hand. The best and most convenient agent for this purpose is alcohol. Even when the tissues are whitened with carbolic acid, the application of alcohol will rapidly bring them back to their normal color and prevent any unfortunate results. This has been mentioned by different writers, but the occasional loss of membrane or integument by carbolic acid on the part of patients at the hands of dentists would seem to be a sufficient excuse for repeating it.

Setting Bandless Crowns:—Crowns of this class may be easily removed if set in the following manner: Heat the post of the crown and while it is hot wrap around it a layer of base-plate gutta percha, which has previously been heated and stretched quite thin. With the gutta percha in place on the post the crown is cemented to the root in the usual way. If necessary to remove a crown when cemented in this way, place a hot instrument in contact with the lingual surface, and the post will conduct the heat to the gutta percha and soften it. Some advise the use of gutta percha alone, but there is an adavntage in the above method, as the gutta percha is not heated when the crown is set thereby avoiding unnecessary pain to the patient. Oliver Martin, Ottawa, Canada.

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Graduates—Joseph Leslie Allen, Benton, Mo.; Jesse Armstrong, Decatur, Ill.; Richard Lipscomb Atmar, Grovetown, Tex.; George Lunsford Aubrey, Clarksville, Tex.; Thomas Glyndon Bradford, Pilot Grove, Mo.; Harry Jacob Braun, St. Louis Mo.; Arthur Dominick Brix, St. Louis, Mo.; Albert Leroy Bryte, Jackson, Mo.; Wilbur A. Clements, La Plata, Mo.; Whitmel Sharrock Cobb, Lewiston, N. C.; Albert Leon Crume, St. Louis, Mo.; Harry Emerson, Stokes, Ill.; Thomas Alvin Fulton, Sparta, Ill.; Eugene Morton Garcia, St. Louis, Mo.; Carl Leonard Glenn, Marissa, Ill.; Emmett Evan Heflin, Ardmore, I. T.; Solomon A. Helck, Grayville, Ill.; Stephen Augustus Houchen, Olney, Ill.; Newton Utley Howard, Knobnoster, Mo.; Claude Vincent Huff, Knobnoster, Mo.; Bertol Enos Livingston, St. Louis, Mo.; Lawrence Roland McCarty, Arenzville, Ill.; Charles Elbert McQuaid, Springdale, Ark.; Charles Guy Miller, Jackson, Mo.; Alvin Cornelius Minges, St. Louis, Mo.; Thomas Niedergerke, Big Springs, Mo.; John Bernard O'Brien, St. Louis, Mo.; Charles C. Orr, St. Louis, Mo.; John Walter Parle, St. Louis, Mo.; William Henry Plumpe, St. Louis, Mo.; Charles Adolph Real, Memphis, Mo.; Charles Ernst Rowe, Nokomis, Ill.; William Henry Shea, St. Louis, Mo.; Garrett Louis Steinmesch, Warrenton, Mo.; George Harvey Tayman, Lebanon, Mo.; Felix Henry Tschudy, Highland, Ill.; Samuel Franklin Wade, St. Louis, Mo.; Thomas Warden, Conway, Mo.; Fred J. White, Hartford, Mich.

CHICAGO COLLEGE OF DENTAL SURGERY.

Graduates—Robert Samuel Arthurs, Lester Maxson Babcock, A. B., William McCall Baird, Robert Lee Bantz, William Garfield, Barackman, George H. Barlow, George Edward Bell, Earl Edward Blodgett, Corydon Ansel Branch, Frederick Albert Bricker, Wesley A. Britzius, Josaphat Louis Brunet, Joseph Dawson Buckley, Franklin Budge, Henry Leonard Burckhalter, George Francis Burgess, William August Buscho, William Harvey Chapman, Ellis Edward Chase, Walter Thomas Clark, George Andrew Clunie, John Angus Cook, Thaddeus Erle Couger, Roy James Cruse, Andrew Irvin Denney, Hiram Alvin Derickson, John Victor Dexter, Carl Otto Dick, Ralph Harvey Dixon, Ezra King Douglas, Samuel Eckel, Loren Eugene Ervin, Frederick Alexander Estock, George Albert Follett, Michael Gregory Fox, Joseph Fulton, Miles Heraty Gallagher, John Robert Gift, William Samuel Gilmer, Samuel Chauncey Gould, Lewis Henry Harding, Charles Davis Hermon, James Benjamin Harmon, Edward Ewel Harris, Frank Alexandra Hautsch, William Henry Hewitt, Walter Gerald Hine, Ralph Burritt Hinman, George Alois Hirscher, Robert Edward Hodson, Jacobus Martinus Hooreman, M. D., Frank William How, Charley Lloyd Huffman, William Horace Hunter, Leslie Dana Hyland, Arthur Edward Irving, Justine Clement Iverson, William Le Roy Ivey, Clarence William Jackman, Norman Emmert Johnson, Edwin Clair Johnson, Francis Patrick Joyce, Edward John Kelley, George Lorne Shields Kennedy, Walter Wenzel Kieweg, Peter Andreas Lerche, Earl Willis Lewis, Charles Howard Libbey, Eugene Anthony Liedl, George Hampson Liepart, Robert Everett Liggitt, Clyde Thomas Liken, John Anselm Limacher, Samuel Elmer Lindley, George William Loomans, Robert Francis Lucas, Leonidas Irvin Luton, Otis Arthur Lyman, John Elliott MacArthur, Roy Stuart Macdonald, Neil J. MacKechnie, Edward Charles Magnuson, Daniel Arthur Maher, Archibald Alexander L. Martin, D. S., Charles Edward Martin, Charles Henry Maynard, Alexander Montrose Maypole, Alexander McCarter, Mark Thomas McMahon, Charles Alfred McRae, Naseef Melaik, Roy De Lacey Michener, Lewis Edward Molseed, Ernest Rufus Morgan, William Godfred Movius, Sverre Holm Nannestad, Bernard Nauman, William Leo Nerud, Fritz Valentine Newhouse, Benjamin Ira Norwood, Hal Nelson Orr, William Edwin Page, Raymond Robert Pashley, Virgil Pearlee Perisho, Charles Henry Paul, John Hardin Phinney, Edward Charles Pickard, L. D. S., Hale A. Plankerton, James Louis Quinlan, Walter Frederick Raubolt, Francis Evan Richards, Arthur Reinhard Rietz, Earl Clayton Robinson, Lawrence Karrel Runkle, Edward Pressley Rhea Ryan, Jay Vernon Sayler, Mathias Leonard Schmitz, John Baptist Hubert Senesac, Willard Parker Sharpe Jr., Frank Webster Shaw, Kester Warren Snider, George Hoxie Steele, Peter Engwald Steinback, Isaac Perry Stewart, Hubert William Stott, George Allen Samuel Stratton, Eugene Frederick Strom, David James Sutton, Harry Edward Sykes, Daniel Preston Thomas, Theodore William Truitt, John Gottfrid Turner, Earle Jay Van Buskirk, Elliott Van Alstine, Albert Edward Voss, James Edwin Waldron, William Brisben Walker, John Walser Jr., Leslie Vernon Wareham, Shirley Thomas Burgh Webber, Philippus Albertus Myburg Wege, Howard Fleckser Whittaker, Everett Crumly Worstell, Charles Lewis Wright, Elbert Clifton Young.

PHILADELPHIA DENTAL COLLEGE.

Graduates—William Winfield Albee, Maine; Heman Anderson, New Jersey; C. Benjamin Andrews, Pennsylvania; Aram Ussep Arevian, Turkey; Harold J. Baker, New York; Allan Romaine Barnum, Connecticut; Joseph Wilhelm Beiser, Nebraska; Edgar P. Bell, Pennsylvania; James W. Bell, Canada; Oscar W. Bennett, New Jersey; Norman Theodore Benz, New York; Roy Emmett Black, Pennsylvania; Walter D. Bray, Connecticut; William Beckwith Brewster, Connecticut; Lex Rowley Browne, Pennsylvania; Frank John Buchanan, Connecticut; Charles Albert Burbridge, Michigan; Edward John Callahan, Massachusetts; Angus Campbell, Canada; J. Luis Cariaga, Bolivia; Edwin Oliver Clapp, Massachusetts; Samuel Edwin Corle, New Jersey; Earl D. Craig, Pennsylvania; Ralph Morton Danforth, Massachusetts; Edward McF. Dennison, New York; Edward John Dougherty, Pennsylvania, Harry Epstein, New Jersey; Robert Richard Ewald, Hayti; Joseph A. Farrel, Connecticut; Frank C. Farrell, New Jersey; Edwin Cross Fitzgerald, Pennsylvania; Albert Earl Franklin, New York; J. Norbert Gelson, New York; William Franklin Good, Washington; William Nelson Gunning, Canada; Joseph Francis Haley, New York; Michael Henry Healy, Rhode Island; William A. Hicks, Canada; Everett Joseph Hinckley, Maine; Stanley Fay Holaday, Iowa; Oscar Charles Horandt, New Jersey; Rupert V. Hosking, New Zealand; Frank Joseph Kenna, New York; Joseph Henry Kenna, New Jersey; Benjamin A. Kreidmann, New York; Hermann M. Krukenberg, Pennsylvania; Matthew Henry Laity, Connecticut; John Francis Light, Massachusetts; Arthur S. Litten, New York; William Lock, Pennsylvania; Ralph E. Macdonald, Canada; Mads P. Madsen, New Jersey; Harry P. Massoth, New York; Raul Vasvidal, Cuba; William Henry Matthews, Pennsylvania; James Maurer, Pennsylvania; Thomas William Mercer, Bermuda; Gerald Elroy Mix, Pennsylvania; John Joseph Mulcahy, Connecticut; Edward Francis McCarthy, Connecticut; Matthew T. O'Brien, New York; Thomas Francis O'Keefe, New York; Charles Edward Paige, Australia; Walter Oscar Paul, Australia; George Sanford Peck, Pennsylvania; Charles P. Phillips, Massachusetts; Leon Willard Platner, New York; Julius M. Politzer, Pennsylvania; Morris Propper, Pennsylvania; C. William Raith, New Jersey; Benigno Ramirez, Porto Rico; James P. Reid, Rhode Island; Frank Lawrence Roberts, Pennsylvania; Frederick P. Robertson, Canada; William J. Robinson, Ireland; Gustav Adolph Schlichter, Germany; Harry Lacy Sexton, New Jersey; Federico Alberto Smith, Honduras; William Alonzo Spear, Maine; Dallas Edward Speed, North Carolina; Albert Joseph Stearne, Pennsylvania; Samuel S. Steinberg, Russia; G. Newman Storm, Pennsylvania; B. Frank L. Swarr, Pennsylvania; Walter West Swazey Jr., Massachusetts; Clayton C. Timbrell, New Jersey; Sara Verona Tomlinson, New Jersey; Charles William Trotham, Canada; Charles R. Uhle, New

Jersey; Franklin H. VanWinkle, New Jersey; Albert Joseph Vaugier, Massachusetts; Ermelindo Vidal, Porto Rico; C. Clayton Ward, Connecticut; Delton C. Watt, Vermont; Charles J. Weidknecht, Pennsylvania; Richard Eastlake West, Pennsylvania; George Wieser, Connecticut; Silas Wade Williams, Pennsylvania; Corydon Henry Wolcott, New York; F. Hawley Wolverton, Ohio.

NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

Graduates—Miss Florence Ethel Abbott, Thomas DeWitt Abernathy, Albert John Andrew Bachmann, Frederick George Bartsch, George Philip Bay Jr., Miss Mace Bean, Leslie Fosbrook Charles Beart, John Marcus Beckett, Walter Thomas Best, John David Bohrer, Harry Alvin Boysen, Henry Oswald Branstad, Almond Edson Bronson, Fred Hugh Brosnihan, Clarence Edwards Burgson, Gordon Leigh Burke, Joseph George Cannon, Walter W. Carlile, Robert Emmett Carlton, Roy Millard Carter, Joseph Benjamin Cecka, Edward TenEyck Chandler, William Edward Chapline, Henry Bannister Clark, Irving Alfred Clark, Timothy Joseph Creeden, Guy Raymond Currier, Guilford Banning Davis, Miss Helen Towle Dearborn, Roy Joseph Denning, William Devlin, Harry D. Dillon, Leon LeRoy DuBois, Harry Parker Dunlop, Charles Milton Enerson, Robert Wilson Fallis, Oren Frederick Fansett, Emerson Godfred Fitzgerald, John Alexander Ford, Merritt Eugene Galbreath, Frank Willis Gale, Melvin Edwin Gale, Julius John Gaus, John William Goggin, Marcus Wesley Gouse, William Joseph Gray, Hayden Boston Grayston, Alexander Samuel Greenwood, Seward Clarence Grinde, George Carlton Grove, Henry Quincy Guest, Myron Francis Hagerup, Baker Aaron Hamilton, Homer Jackson Harpole, Bert Alfred Harris, Madison Curtis Harris, A. B., William Leonard Harrison, Benjamin Theodore Harsch, Holmes Weston Haviland, Eli George Heck, Franklin Edward Heidel, John Lewis Hesse, Thomas Bruce Hill, Frederick Worth Hines, Arthur Edwin Hoag, Oscar Renus Holmin, Leslie Ernest Arthur Hooey, Archie Bertel Hopper, Clarence Mell Horn, John Henry Hospers, A. B., Edwin Benson House, Ralph Thomas Huff, John Holman Humphrey, Hugh Chester Hurd, Harry Milton Johnson, Roger Theodore Jones, John Joseph Kelly, Edward Arthur Laign, Philip Forsyth Lamm, James Rowland Laughlin, Eustace Porret Leakey, Mrs. Mae Burton Leavitt, Charles Herman Lietzmann, James Burgess Long, Erlow Bliss Loofboro, Dorance Timothy Love, Roy James Low, Walter Garfield Lux, B. S., Frank Clifton, McClenahan, Eugene Percival McCowen, Clyde Isaiah McCumber, James McAdam McIntyre, Edward McQuillen, Norman Arthur Macdonald, George Addison Madison, John Lyle Malcolm, Glenn De Motte Marr, John Lewis Mathews, Miss Jennie Louise Miller, Orlen Jacob Miller, Wesley Clarence Mittan, Joseph Conness Mohan, Joseph Henry Moreau, Benjamin Alder Murray, Frederick Andrew H. Olsen, Bunyan Warwick Ostrander, Ernest Williams Patton, Charles Elfred Perry, James Samuel Pierce, Lovejoy Pottle, Merle Mayo Printz, Thomas Henry Rand, Alfred Theodore Rasmussen, Robert George Richardson, Walter Harcourt Rimmer, William Joseph Robinson, Edwin Ralph Rossteuscher, Raymond Julius Sauer, Howard Bond Saunders, B. S., Emerson Robert R. Sawyer, Herbert Shaw Scofield, Daniel Scholler, Miss Maria M. Schroeder, Arthur Edward Schuler, Bernhardt Frederick W. Schwartz, Benjamin Bear Shirk, Herbert Garfield Shumway, John Dorris Simms, Albert Benjamin Slick, B. S., Frank Leroy Sluss, Edgar Wilson Smith, James Perrie Smith, Martin Christian Stalland, Benjamin Swartout, Edward Luke Teskey, George Patterson Thompson, James Williams Thorpe, William Julius Thorson, Morton Cranage Tilden, Robert Francis Walter Tracy, Walter Elbert Trerise, Harry Albert True, Harry Morehouse VanDeusen, Ralph Newton VanSant, Harry I. Van Tuyl, B. S., M. D., Meredith Watson, Frederick Harold Werner, Frederick Jacob Wetterer, William F. Roscoe Whorton, Charles Arthur

Wiese, Evart Velie Williams, Hugh Richard Williams, William Knox Wilson, Harry Augustus Wise, Willard Jason Wiswall, Bertram Guy Wood, John Adam Wood. The following have completed the course with credit, but for reasons of a technical nature the degree can not be conferred at present: John Frederick Barrett, Frederick Martin Blair, D. M. D., Charles Kingsley Bowers, Cassius Clay Keith, Clyde J. Keith.

MEMORANDA.

DELTA SIGMA DELTA.

The twentieth annual meeting of the Supreme Chapter, Delta Sigma Delta fraternity will be held Wednesday, August 31, 1904, at St. Louis, Mo. George Edwin Hunt, 131 E. Ohio street, Indianapolis, is chairman of the committee on arrangements.

NORTHERN IOWA DENTAL SOCIETY.

The tenth annual meeting of the Northern Iowa Dental Society will be held at Waterloo, Iowa, July 26, 27 and 28, 1904. Arrangements are being made to make this a most profitable meeting. Railroad rates can be secured at this time.

C. L. Topliff, Secretary.

WISCONSIN STATE DENTAL SOCIETY.

The thirty-fourth annual meeting of the Wisconsin State Dental Society will be held in Manitowoc July 19-21, 1904. A cordial invitation is extended to all ethical practitioners to meet with us.

A. G. Fee, President.

W. H. Mueller, Secretary,
Madison, Wis.

THE SOCIETY OF DENTAL SCIENCE OF ST. LOUIS.

The officers elected at the annual meeting of the Society of Dental Science of St. Louis, held May 10, 1904, were as follows: President, Dr. Richard Summa; vice-president, Dr. H. F. D'Oench; secretary and treasurer, Dr. Emma Eames Chase; curator, Dr. G. H. Westhoff, member of board of censors for three years, Dr. Adam Flickinger.

Emma Eames Chase, Secretary.

IOWA STATE DENTAL SOCIETY.

The forty-second annual meeting of the Iowa State Dental Society was held at Des Moines, May 3, 4 and 5, 1904. The following officers were elected for the ensuing year: President, Dr. J. V. Conzett, Dubuque; vice-president, Dr. J. B. Pherrin, Central City; secretary, Dr. C. W. Bruner, Toledo; treasurer, Dr. Mae Reynard, Osceola.

C. W. Bruner,
Secretary.

VERMONT BOARD OF DENTAL EXAMINERS.

The Vermont Board of Dental Examiners will meet at Montpelier on Tuesday, July 5, 1904, at 2 p. m., for the examination of candidates to practice dentistry. Headquarters will be at the Pavilion Hotel. Application blanks, together with rules and instructions to candidates, can be had by applying to the secretary. Application, with the fee, ten dollars, must be filed on or before June 27, 1904.

George F. Cheney, Secretary,
St. Johnsbury, Vt.

RECENT PATENTS OF INTEREST TO DENTISTS.

757,885. Antiseptic tooth brush holder, James A. Cochrane, Cincinnati, Ohio.

757,907. Tooth brush with washing device, Friedrich Fritz, Trieste, Austria-Hungary.

757,938. Dental appliance, William T. Lyon, Portland, Ore.

758,422. Dental matrix-retainer, William Crenshaw, Atlanta, Ga.

758,309. Box for containing tooth powder, Mordecai H. Fletcher, Cincinnati, Ohio.

758,109. Tooth brush, Harry E. Sandiford, New York.

758,741. Dental lamp, Hiram E. Dunn, Warren, Ohio.

758,750. Artificial denture, Oliver C. Haldeman, Upland, Neb., and J. R. Haldeman, Independence, Mo.

758,764. Tooth brush, William A. Macleod, Boston, Mass.

759,189. Dental or surgical chair, Luther T. Parsons, Princebay, N. Y.

759,498. Filling teeth, Eduard Bosch, Geneva, Switzerland.

759,490. Tooth brush, John A. Yates, Rockfort, Indiana.

Copies of above patents may obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

ILLINOIS STATE DENTAL SOCIETY.

At the meeting of the Illinois State Dental Society, held in Peoria, May 10th, 11th and 12th, the following officers were elected: President, C. N. Johnson, Chicago; vice-president, W. F. Whalen, Peoria; secretary, Elgin MaWhinney, Chicago; treasurer, Charles P. Pruyn, Chicago; librarian, J. T. Cummins, Metropolis City; new members of executive council, G. E. Warren, Pontiac; O. L. Frazee, Springfield; C. E. Bentley, Chicago; chairman executive committee, M. L. Hanaford, Rockford; committee on science and literature, E. H. Allen, Freeport; committee on art and invention, J. H. Prothero, Chicago; supervisor of clinics, S. F. Duncan, Joliet; local committee of arrangements, L. W. Skidmore, Moline; committee on infraction of code of ethics, C. B. Rohland, Alton; A. J. Elmer, Rochelle; R. J. Cruise, Chicago; examiners, Edmund Noyes, Chicago; C. B. Sawyer, Jacksonville; T. F. Henry, Streator; ad interum committee, D. M. Gallie, Chicago; C. N. Johnson, Chicago; J. G. Reid, Chicago; committee on necrology, Edmund Noyes, Chicago, C. R. E. Koch, Chicago; C. B. Rohland, Alton; publication committee, Elgin MaWhinney, Chicago; T. L. Gilmer, Chicago; J. G. Reid, Chicago; editor of transactions, Edmund Noyes, Chicago. Forty-first annual meeting will be held in Moline, May 9, 10 and 11, 1905.

ELGIN MAWHINNEY, Secretary.

CHICAGO DENTAL SOCIETY.

Resolutions on the Death of Dr. E. D. Swain.

The Chicago Dental Society, now in session, offers this expression of our grief at the sudden death of Dr. Edgar D. Swain.

For more than thirty years he was one of the group of honored and trusted men who conducted the affairs of this Society and the State Society. He performed every service and received every honor that those Societies could ask or confer upon him and his name was seldom absent from the list of officers or important committees.

His strong, sincere and positive nature won for him, far more than is usual, the respect and honor of all who knew him and the warm affection of those who were nearest to him. These qualities and a generous disposition made him especially a friend and helper of worthy young men. No one ever heard him speak a harsh or unkind word to any one, unless for some act of meanness or sordidness.

This Society, the State Society, and the dental profession of Illinois owe him a large debt of gratitude, and his memory will long be cherished among us. Those who knew him well will never cease to miss his presence and to mourn his loss.

Resolved, That the above be placed upon the records of this Society and copies be sent to his family and to the dental journals.

EDMUND NOYES,
J. G. REID, } Committee.
GEORGE J. DENNIS,

CHICAGO, May 13, 1904.

TO THE EDITOR OF THE DENTAL REVIEW:

Dear Doctor: In view of the fact that we have some ten or twelve thousand duplicate dental journals in our library, we wrote some time ago to a few dental schools that we knew were building up libraries, asking them to join with us in the organization of a *Dental Journal Clearing House*, through which we might exchange duplicate copies of our dental journals. The scheme has met with general approval, and we are already assured of many thousands of duplicate journals for exchange. In order that all who are interested may have an opportunity to join the clearing house, we are sending this letter to the deans of all the dental schools, and the editors of all dental journals in this country.

The plan is this: Each member will send in a list of *journals wanted* to complete files, also a list of *duplicates* on hand. When all of these lists are in, it will be the endeavor to use the lists of duplicates to fill out the list of journals wanted as far as possible for the mutual benefit of all. Notices will then be sent to each member stating what can be furnished and what duplicates are wanted from each library. This clearing house is not for the sale or purchase of any books or journals, but only for the free exchange of duplicates.

To make the work of clearing as easy as possible, we will furnish you with blank sheets to use in making up lists, so that all will be uniform. Trusting that I may hear from you promptly, I am,

Very truly yours,

ARTHUR D. BLACK,
Chairman of Committee appointed by faculty of Northwestern University Dental School.

P. S.—Please address reply to 31 Washington street, Chicago.

IOWA STATE DENTAL SOCIETY.

Report of Committee on Dr. I. P. Wilson, Deceased.

Your Committee would report as follows:

Whereas, Since the last meeting of this Society death removed from us on the 9th day of March, 1904, one of our most honored and esteemed members, Dr. I. P. Wilson, of Burlington, we, as members of this Society, wish to give this expression as to his worth and character, and to the esteem in which he was held by this Society and the profession of the State.

Dr. Wilson was an Iowa dentist, having come to the State from Ohio when about fifteen years of age, studied dentistry with Dr. Tullus, of Iowa City, and later graduated from the Missouri Dental College. He spent the whole of his professional life in Iowa, the greater part of which was in Burlington. For forty-one years he was a member of this Society, being prominently connected with its early history.

Dr. Wilson was devoted to his profession, never being satisfied with present attainments, but constantly pressing forward, keeping abreast with the advance made by the profession. He always regarded this Society as indispensable to his advancement.

As an instructor in the dental department, S. U. I., and later in the Keokuk Dental College, he endeared himself to the hearts of the students.

He was pre-eminently the friend of the young men of the profession, and his influence was that of an honest, upright, professional, Christian gentleman, therefore be it

Resolved, That this Society hereby testify to the loss we experience in the death of Dr. Wilson, and extend our sincere sympathy to Mrs. Wilson and the family in their bereavement; that these resolutions be spread upon the records of this Society; that a copy be sent to Mrs. Wilson and the family; also the dental journals for publication.

J. B. Monfort,
A. W. Dana,
Anna H. Joy,
} Committee.

NOTICE.

The Swedish Dental Society herewith beg to invite a competition for a popular treatise, entitled, "The Teeth and Their Care," which treatise is intended to be spread through the Society on a large scale among our people in school and home.

The competition is open to everybody. The treatise, written in the Swedish language, must not exceed one printed sheet. Each competitive essay should bear a motto or mark and be accompanied by a sealed envelope with the same motto or mark, which envelope should contain the name and full address of the author. The essay should, besides, have no designation as to its origin, and is to be sent to: "The Jury of the Swedish Dental Society," 19 Drottningzatan, Stockholm, by February 28, 1905, at the latest, duly signed and, preferably, typewritten.

In judging treatises it should be considered, in the first place, how far the respective essays answer the expectations of a really popular treatise on the teeth and their care, intended for the growing generation and the common classes of people.

Thus it must give a plain and easily understood account of the subject, consequently not being dry or wearisome in details and unnecessarily long descriptions. To avoid this, original sketches may be annexed or otherwise well known good reproductions referred to, always observing the stipulation made above as to the extent of the pamphlet.

Leaving all hypothesis out of consideration, the authors should base their statements on strict scientific experience only.

The awards will be: First prize, 700 kroner ($185); second prize, 300 kroner ($80).

The jury being commissioned by the Society to judge of and eventually to award the essays will consist of Messrs E. Almquist, A. Lindstrom, Professors, with C. Wallis, Professor, as deputy, also Messrs. V. Benson, E. Forberg, D. D. S., and G. Forssman, D. D. S., with Mr. G. Modu, Dentist, as deputy.

Awarded essays to be the property of the Swedish Dental Society.

On behalf of the Swedish Dental Society,

Emil Christenson,

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

THE TROPHIC DISTURBANCES OF THE FIFTH PAIR OF NERVES.*

BY HAROLD N. MOYER, M. D., CHICAGO, ILL.

Mr. President, Ladies and Gentlemen: You will find my address tonight somewhat desultory. In the main it will be the relation of personal experience and of varying views entertained from time to time as to the origin of certain diseases connected with the fifth pair of cranial nerves. That I do not come before you wholly without standing, I may mention that among my credentials is that I am known as the castor oil doctor. That term has been applied because I have used castor oil in the treatment of trifacial neuralgia with a degree of enthusiasm and persistence worthy of a better cause; not that I want to take the full credit for the castor oil treatment. I was rather a disciple than a leader in that great movement.

The castor oil treatment originated in Gussenbauer's clinic in Vienna, and it came about in this way: A common practice in that clinic, as in many other surgical clinics, is to prepare patients by freely moving the bowels before operations. Many patients that came to the clinic to have the Gasserian ganglion removed or other operation upon the fifth nerve, would be given this preliminary treatment, and the next day they would feel better, and a day or two afterward they were quite relieved of their neuralgia, and did not want to undergo an operation.

Before I began the use of castor oil in the treatment of these cases, I had arrived at a very simple and, as I thought, an adequate theory as to the derangements of the fifth nerve, and as to the importance of the teeth in their development. It was based on comparatively few cases; one of them was a man with an acute neuralgia of the fifth nerve which extended to the infraorbital, but largely involved the middle branch. I examined his teeth carefully and found one tooth exquisitely tender. He was taken to a dentist who removed the offending tooth, finding an abscess on the end of one of the roots. I told him that the trouble was found and that would be the end of the pain. But the neuralgia continued the same as before; in fact, it kept on getting worse, and he remained under my treatment for three or four months. This was before the castor oil period of my career. Obtaining no relief he finally drifted into the hands of another physician. I had a theory which seemed to fit these cases that the neuralgia was essentially neuritic, an inflammation of the nerve trunk that had its origin probably in some local infection commonly associated with the teeth, and even when one removed the offending cause, complete relief might not be afforded because the neuritis had already traveled up the nerve and could not be relieved by simply removing a tooth. When it reached the ganglion, then the trouble was central and incurable, and nothing but the renewal of the ganglion was of any use. That theory was attractive because it was simple, and I think it is held to a considerable extent at the present time, but it does not explain the varieties of facial neuralgia which we meet. The inadequacy of it was brought to my mind by a recent report of an operation for the removal of the Gasserian ganglion. The surgeon who undertook that operation did not succeed in removing the ganglion. There was so much hemorrhage and shock attending the operation he desisted, plugged the wound, put the patient to bed, and forty-eight hours later the patient had sufficiently rallied to be put on the table again, and an attempt made to remove the ganglion. Again he failed because of shock and hemorrhage, the wound was closed and the patient recovered. There was perfect relief of the pain which persisted for more than a year, at which time she passed from under observation. This was an instructive case. It thoroughly unsettled my preconceived theory of a neuritis developing from the peripheral portion of the nerve and traveling as far back as the ganglion and involving it. If the pain had been ganglionic, it was unreasonable to suppose that if the ganglion was intact the pain would cease.

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*Read before the Chicago Dental Society, February 2, 1904.

The literature records a variety of operations for the relief of trifacial neuralgia, all of which have had some success. The mere removal of the nerve itself has been followed by a number of cures, while it is largely condemned in works on surgery. I have known a considerable number of patients who have had the infraorbital or one of the dental nerves divulsed, and they have not had return of pain, at least for a considerable period afterwards. These cases were not followed very long; one of them went three years without any pain, and after that I lost track of the patient. As a rule, a mere section of the nerve only affords temporary relief, say for a few weeks or months. A number of operations have been devised which are in part substitutes for the removal of the ganglion. Among those of the later ones, is the suggestion of Spiller, that the sensory root be divided and the ganglion left intact. Two such successful cases have been reported. Spiller claims that there will not be regeneration of the sensory root and its division is equivalent to the removal of the Gasserian ganglion. It is a simpler operation; the difficulty is not in reaching the ganglion, but in removing it.

Another ingenious modification of this radical operation is proposed by Abbe. Instead of removing the ganglion he makes a section of the three branches near the ganglion, and inserts rubber tissue and leaves it in place. The latter prevents reunion of the nerves or their regrowth. This operation has been successful in one case. This operation serves the same purpose as the removal of the ganglion.

Of another series of operations, I have been able to collect six, unquestionably successful cases, the operations having been done upon another theory in regard to the development of neuralgias of the trigeminus. More than a year has elapsed without return of pain in any of the six cases. The operation consists in a removal of the superior cervical ganglion, simply an interference with the vaso-motor nerve supply of the affected side of the head. A moment's reflection will take those cases out of the category of a neuritis extending along the nerve trunk and involving the ganglion; it is not reasonable to suppose that mere interference with the vaso-motor supply or that governing it by such an operation as the removal of the superior cervical ganglion would result in a cure if the trouble were due to neuritis. There are some things in the history of these cases that would lead one to think that a disturbance of the vaso-motor supply is not an infrequent cause of this form of neuralgia. In some of them the pain comes on suddenly; it is epileptiform in character; the face or head is flushed; sometimes the pulse is distinctly accelerated, and vascular pressure is increased. Occasionally the symptoms are reversed, the skin is pale and cold, showing a spasm of the peripheral vessels with diminution of the blood supply. The group of cases in which there is vaso-motor disturbance includes the larger number of cases and it is the group in which the castor oil treatment is most efficient. No one who has given the castor oil treatment a fair test will question its value. It will not cure every case, but two-thirds will be benefited, and of this number one-half will be almost cured; that is, they will go from three to eight months without return of the pain, and frequently with the recurrence of the pain the same treatment will result in further relief; a reasonably perfect cure is effected in about one-third of the cases. I think this central idea of a vaso-motor disturbance is the one that explains the effect of this eliminative treatment. There is nothing specific in the castor oil treatment; other cathartics are good, but castor oil is the best, providing it is persistently used.

What is the explanation of the effect of the eliminative treatment? To my mind, only one, and that is an autointoxication, the presence of some substance in the blood, possibly absorbed from the intestines, or elaborated somewhere in the glandular structures of the body, which this persistent and copious catharsis gets rid of. If it cures the neuralgia, does it cure the neuritis? It does not seem that such deduction is logical. The only possible way of getting rid of the deleterious effect of the substance or substances which cause neuralgia would be in altering the vaso-motor supply of the affected region, and if you think for a moment of the intimate relations that the sympathetic or the vaso-motor nervous system has to the vascular supply of the side of the head, and the vascular supply intimately related with these ganglia and with the nerve trunk itself, you will agree that they probably play an important part. The branch from the spheno-palatine ganglion furnishes abundant nerve supply to the carotid plexus, which is closely related to ganglion on the fifth nerve and is intimately associated with superior, middle, and lower cervical ganglia. The removal of the superior cervical ganglion has proven of value in glaucoma, exophthalmic goitre and trifacial neuralgia. It is obvious that the effects of the operation are due to an alteration in the blood supply.

I have briefly given an outline of my views as they have evolved in the years in which I have treated this class of cases. I have come to have a broader idea of this disease than a neuritis, one which becomes central and incurable. You may ask, Do you reject the neuritic theory? Not at all. I believe there is a certain group of these cases that falls within my original conception; that is, of a disease which starts in the peripheral ending of the nerve, which travels up as a neuritis, and ultimately involves the ganglion. I believe they comprise ten per cent. of all cases as we meet them, and they are alone remedied by the more severe surgical operation of removal of the ganglion or section of the nerve roots. So much for the outline of neuralgias of the fifth nerve, their pathology and mechanism, as I understand them.

I now come to a part of the subject which more particularly concerns you as dentists, and my preliminary remarks largely lead up to what I shall have to say as to the origin and mechanism of the neuralgias. Much has been written upon the reflex origin of disease. I scarcely use that term, and I never employ it unless I qualify it with some adjective. The term reflex as applied to a disease entity has come to convey to different minds such a wide and varying conception that it is profitless to employ it, as it will have almost a different meaning to every person to whom it is uttered.

A considerable number of reflex diseases or disorders are claimed to have their origin in the teeth from irritation of the fifth nerve. I have examined many of the reported cases, but have not had time to fully classify them. Quite a large number of ocular disturbances have been attributed to disorders of the teeth. One case of total blindness is said to have been relieved promptly after the extraction of an offending tooth. There are many cases of this kind, running all the way from diplopia to more or less impairment of vision and pain about the eyes. Comparatively few of these cases will stand analysis. The one I have named of total blindness was clearly a case of hysteria. There are some other cases reported of pain and redness of the eyelids, which were relieved by the removal of offending teeth.

In another group of cases aural disturbances are referred to. One writer reports fifteen hundred cases of aural disease, and of this number he says one-third were attributed to disturbances in and about the teeth. This man must have had a singular experience in ear diseases, and one can hardly accept these figures. That certain disturbances of the ears, such as ringing in the ears, or possibly spasms of the Eustachian tubes may be due to reflex causes is probable.

Facial twitching has been relieved by the removal of carious or abscessed teeth. Many of these cases have a better basis than the ocular or aural disturbances; most of the latter will not stand a careful inspection of the histories.

A still larger work has been done in France, by Jacquet. one of the most enthusiastic students of the whole subject of reflex disturbances and trophic disturbances growing out of diseases of the fifth nerve and their relation to the teeth. His work is interesting, and will stand rigid scrutiny. His published cases amount to two hundred. He states that baldness is occasionally due to reflex disturbances, particularly alopecia areata. He studied the relation of dental irritation to certain hyperesthesias, erythemas, and painful points and other trophic disturbances about the face and scalp. He found among two hundred of his cases baldness in twenty-seven, which were, in his judgment, clearly due to disturbances of the teeth, and he furnishes an interesting plate which shows the portions of the scalp and face which were associated with disturbances of special teeth. A common relation was the cuspid tooth upon the same side, with disturbance about the side of the nose, or the development of baldness just at the margin of the hair. The back teeth were frequently associated with baldness of the occiput.

Of late years the so-called reflected pains have been studied in different parts of the body. Dana, fifteen years ago, gave a classic description of the reflected pains of the body. He showed how pains on the surface of the skin were associated with various diseases of the internal organs. In this study he was followed by Head. of England. Head finds that with inflammation of the gall-ducts, the kidneys, and of the appendix, there are certain areas of hyperesthesia. A writer in a recent number of *The Lancet* gives a description of the hyperesthesia of the skin that occurs in appendicitis, and in a majority of the cases he has been able to determine—not tenderness upon pressure, but by simply irritating the skin with any little instrument, like a pin—that there was detected an area of hyperesthesia that corresponds with the spinal segments which are in direct relation with the nerve supply of the affected part. That is the invariable rule, and is to my mind the strongest evidence of the correctness of these deductions regarding the relation of the teeth to disturbances in the trophic supply of the face.

If these deductions are correct, we are brought to the practical bearing of the subject. I venture the assertion that a large share of the disorders, both trophic and painful, of the fifth nerve, have their origin in the teeth. I know that I am carrying coals to Newcastle when I tell you this, as you have observed many such cases. Let me urge those of you who treat diseases of the teeth to broaden your clinical investigation of your cases somewhat, as this is an important matter. I urge you to watch your cases in the next three or four years, and investigate what trophic disturbances your patients may have besides those associated with the conditions you find in the mouth. Unfortunately, those of us who devote particular attention to the nervous system do not see many of these cases. I have seen but one in the past year. I had one woman, whose boy I was treating, who called my attention to an eczematous patch at the scalp margin. I said to her: "How are your teeth?" She replied: "I have been over to my dentist and have had a tooth treated on this side." No doubt, there was a causal relation in this case. Those of you who see the teeth first should broaden your clinical investigation of the cases; see if there are any trophic disturbances about the face, if there is an erythema, a baldness, or tenderness which may be due to the conditions that are taking place in the mouth.

DENTISTRY IN SOUTH AFRICA.

BY HORACE WYNDHAM.

Now that the long-drawn-out Boer War is happily over, South Africa offers an increasingly remunerative field for dental practitioners. Although it has been considerably added to of late the number of those engaged in the profession is still unequal to the demand. This is especially the case on the Veldt and in the remote "up-country" districts where it is quite a common thing for patients to travel hundreds of miles in order to obtain relief from the host of dental troubles that humanity is heir to. When a practitioner in these localities has once made a name for skillful treatment he can quickly build up as large a practice as he is able to cope with.

In the big cities, such as Capetown, Johannesburg, Pretoria, Durban, Kimberley and Bloemfontein, etc., dentists who know their work usually make very handsome incomes. Fees, as a rule, are high, and business is plentiful. The charge for the simplest operation is seldom less than five dollars, while for extractions involving the use of gas twice this amount is readily paid. Altogether, it costs a good deal to consult a dentist at the Cape who enjoys anything of a reputation.

Many of the leading practitioners in South Africa have been trained in England and hold London certificates. There are also a large number of licentiates of the best known colleges in the United States, for the American system of dentistry is daily becoming more popular. Those who are benefited are loud in their recommendations and thus do more good in the way of securing other patients than do columns of newspaper advertisements. The American dentists, it may be mentioned, are chiefly patronized by those who require artificial teeth, for in this branch they are miles ahead of their British and Dutch confrères practicing in the different parts of the country.

The establishments of the chief members of the profession in Capetown are situated either in Adderley street or its immediate vicinity. They are handsomely furnished throughout and are fitted up with every possible requirement. Even the consulting rooms—with their comfortable chairs and abundance of the latest appliances—are devoid of half the terrors usually associated with such apartments elsewhere. The average resident in South Africa, be he British or Dutch, judges largely by externals and is apt to leave severely alone premises that look at all second rate. These, he wisely reasons with himself, mean second rate treatment.

In addition to their city establishments, many of the Capetown dentists have smaller branches in the suburbs. The principal among these is known as Sea Point. This is a large and open district on the right spur of Table Mountain and faces the bay. Forming the chief residential quarter of the official and mercantile community, it is at once a pleasant and profitable locality from the dentist's point of view. Other outlying parts resorted to for the same purpose are the villages of Maitland, Kenilworth and Wynberg. The last named is about nine miles from the metropolis. It is connected with it, however, by an excellent rail and electric car service. Further on, towards Simon's Town, is the well-known holiday resort, Maisenberg, where the late Cecil Rhodes frequently spent a few weeks. In the suburbs, by the way, charges are slightly lower than they are in the city itself. Fortunately, the cost of living is reduced in proportion. It is, however, quite high enough to make serious inroads on the profits that would otherwise accrue to a big practice. As a professional man, a dentist in South Africa has to maintain a certain amount of style. He must occupy a good house in a smart neighborhood and keep up an extensive staff of servants. All this, when rent and taxes are added thereto, runs away with a good deal of money. Still, as has already been remarked, the business when properly conducted is a remunerative one.

The working hours of a South African dentist are, roughly speaking, from 10 A. M. to 7 P. M. It is during the afternoon, however, that most business will take place. Very often practitioners are asked to visit patients at their own residences. For engagements of this description a fee of a hundred dollars is considered nothing out of the way. When a journey of any length is involved the remuneration is of course much higher. On certain days in the week many dentists set the evening aside for attending members of the working classes, and a special reduced tariff is in force for the benefit of these. Among those taking advantage of this concession are usually a good many of the soldiers forming the British military garrison of the country. This is because dentistry in the English army is at a very low ebb. The average regimental doctor, indeed, knows next to nothing about it and can not even perform a simple extraction creditably. On this account a soldier will endure the most violent toothache before he will voluntarily seek relief at the hands of a military surgeon. He finds it far more to his advantage to consult a properly qualified civilian practitioner and thus at any rate save such teeth as may happen to be sound.

Dentists in Johannesburg and the other big cities follow their calling under practically the same conditions as those obtaining in

Capetown. Fees in the Transvaal rule perhaps rather higher than they do in Cape Colony. The financial advantage that might otherwise ensue is, however, in great measure swallowed up by the largely increased cost of living. House rent, indeed, is almost prohibitive and hotel life can only be enjoyed by millionaires. For this reason Johannesburg dentists usually content themselves with hiring business premises in the city and putting up at a boarding house in the suburbs. To live in even the most moderate comfort entails a daily expenditure of at least six or seven dollars. This, added to office rent and servants' wages, means taking a lot of money before any profit is seen. People who grumble at the charges they are asked to pay for having their teeth looked after in the Transvaal are apt to forget this.

A Traveling Dentist from Capetown Visiting
Native Patients on the Veldt.

Ability to speak Dutch, and either Zulu or Kaffir in addition, is a necessary part of a South African dentist's mental equipment. Indeed, it is a *sine qua non,* for if English he will do business only with patients of this nationality. As these are in the minority, he will easily be left behind by those of his professional brethren who can talk to all comers in their own language.

The average Dutchman is not at all fond of parting with his money and always puts off visiting a dentist until the last possible moment. Before summoning up his courage to do so he will probably try a good deal of amateur treatment. The usual form of this consists in bathing the affected jaw with a decoction of various herbs or experimenting with the nostrums of itinerant quacks. Finding these of no avail he often gets a muscular neighbor to try hauling out the offending molar with the aid of brute force and a pair of pinchers. As a rule, it is only when these heroic measures fail that he enlists professional assistance. He will not actually do so, however, until he has first bargained at great length about the fee. If he can beat this down at all he feels that he has not endured in vain.

Speaking generally, Boers suffer a good deal from their teeth, owing to their habitual neglect of them. The daily use of a brush and some good dentifrice they regard as both effeminate and unnecessary. Indeed, it is only the higher classes among them who have any acquaintance at all with such articles. Their diet, too, is largely responsible for their frequent troubles in this respect. It consists in great measure of "biltong"—*i. e.,* sun-dried beef. This they chew all day long, with the result that particles constantly lodge between their teeth and set up decay. A Boer of mature age with sound jaws is quite the exception. The younger generation, however, are, on the whole, better off in this respect, for their association with the British residents usually teaches them the value and necessity of personal cleanliness.

The Kaffir and Zulu population of South Africa are, on the other hand, usually blessed with teeth that are at once the despair and envy of their white neighbors. They are so strong, indeed, that their owners think nothing of cracking the hardest nut with them. Great attention, too, is invariably paid to their cleanliness and no native would dream of eating until he had first polished them thoroughly.

As to other mortals, however, toothache is bound to come to most natives sooner or later. When first attacked they conclude that they are possessed by a "devil." To exorcise this, accordingly, they consult a "witch-doctor," usually a repulsive old hag of extreme age and ugliness belonging to their particular tribe. Should this individual be a male—as is sometimes the case—he is bound to be quite as unpleasant a person to look at. He is then, however, known as a "medicine-man." The treatment meted out seldom changes. It commences by requiring the sufferer to bring various gifts to the practitioner's hut. The more valuable these, the sooner and the more efficacious, he is informed, will be the cure. A horrible and vilely smelling mixture compounded of various plants and juices is then swallowed to the accompaniment of weird incantations. Should the patient's tooth continue to ache after all this, sterner measures are promptly resorted to. These culminate in employing a couple of stalwart assistants to tie the sufferer to a tree, when the tooth is prized from the gum by manual labor. As may be imagined, under these conditions the last state of the patient is often considerably worse than the first.

A Native "Witch Doctor" Waiting for Patients.

Notwithstanding the superstitious veneration in which he holds his own "witch-doctors" and "medicine-men," the average native infinitely prefers to consult a white dentist. When he hears that one of these is in his neighborhood, engaged perhaps on a hunting expedition (for practitioners from the big cities often make a short trip to the veldt for the purpose of combining business with sport), he immediately calls upon him. His gratitude towards the operator when his suffering is relieved is very great. At times it is also rather embarrassing, for it is apt to take the form of bestowing upon him a couple of dusky wives, for whom he himself has no further use. Payment is also sometimes made in cattle or elephant's tusks, while natives from the Kimberley district occasionally mark their appreciation of the dentist's skill by presenting him with a valuable diamond.

An Unwilling Zulu Patient Consulting a Native "Medicine Man."

A Kaffir who has had a tooth pulled out by an English or American practitioner is an exceedingly important individual to his neighbors. For days after the event they regard him as second only to the possessor of an artificial set. Such a one as this indeed enjoys a social prestige that exalts him above the remainder of his tribe forever. In Matabeleland and along the banks of the Zambesi natives sometimes go the length of bribing an itinerant dentist to perform the necessary operation when their teeth are really perfectly sound. Human vanity can scarcely go beyond this.

ADHESIVE FILLINGS. CEMENT OR CEMENTED FILLINGS.*

BY C. N. THOMPSON, D. D. S., CHICAGO, ILL.

The selection of this subject is prompted by a desire to consider some of the evil effects following the use of metallic fillings, and to present a few thoughts relative to methods of utilizing cement to retain them without reducing their durability, and at the same time giving the vital part of the tooth the benefit of good insulation.

It should be stated that for all reasonably small cavities not within the lines of vision and not reaching deep into the dentine, gold foil fillings still stand without an equal, especially in pit and fissure cavities in posterior teeth, and unless used for esthetic reasons, it is only when cavities become extensive that adhesive fillings become truly practical.

Though it is well known that tooth enamel becomes brittle following the removal of the pulp, modern practice teaches that such should be the procedure, because the practice of placing metals in close proximity to it so frequently causes or hastens devitalization that it often might better be done in the beginning.

The present generally accepted plan of protecting the pulp, "assuming that it is in good condition," is to cover the dentine over it with a layer of cement flowed on to avoid pressure, and at a subsequent sitting to proceed with the metal part of the operation. This procedure is only partially effective, because undercuts in cement are not reliable and anchorage must be secured by removing part of it, and the undercuts secured in the dentine, thus defeating the object desired.

As a filling material by itself, cement ranks far below most other materials for actual wear, but its other desirable qualities rank it as one of the most useful materials we have—not as an entire filling, but as an essential part of many of our so-called metal fillings. It is used in deep cavities that encroach dangerously near the vital part, and is our only safeguard to protect the pulp from thermal action or other outside influences so readily and unfailingly passed along by our otherwise perfect metal fillings. And the fact that it is used in greater or less proportion in nearly all deep cavities is sufficient evidence that the presence of metal in the tooth is known to be detrimental to the life of the pulp, and that cement is the opposite.

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*Read before the Minnesota State Dental Association, 1903.

It will be some time yet before statistics proving its true value can be secured, for as now used it, more than any other filling, gives the greatest percentage of dead pulps under it, but that is because it is so often used as a last resort over the most hopelessly infirm pulps, and is continually used when devitalization should have been the procedure.

It is claimed that cement will sometimes devitalize, but it has not been proven. and it will be hard to prove, because it will be almost impossible to know beforehand that the pulp was not already infected fatally. Its so-called deleterious escharotic effects are proven slight when not in actual contact with the pulp tissue, which must be avoided at all hazards.

The misbehavior of cement is usually due to imperfect mixing. and when so applied not only does not wear, but owing to its porosity, creates a nest for infection.

The generally accepted value of cement is its color. resistance to thermal action and its support to the cavity walls.

If it compared favorably with metals as regards wearing qualities it would quickly supercede them entirely, on account of its color, if for nothing more, for while its natural appearance may not be all that could be desired, when intelligently made use of, it is in infinitely better taste and more artistic than even gold.

But its color is not its greatest value. It protects the vital part from thermal action, and is that all? May there not be other detrimental influences at work from metal fillings? It has been proven that there are often galvanic conditions present in the mouth following the insertion of metal fillings of different polarity, provided the saliva is favorable to it. Galvanic batteries are constructed upon this plan, and a delicate galvanometer will show electric conditions present more often than is generally supposed. Just how harmful such slight currents are is a problem yet to be solved, but it is contrary to the normal condition and I am satisfied that it is often the cause of marked neuralgic effects.

Although the base of our cements consists of metallic oxides. they are proven good insulators, and may it not be due to this property that we have unwittingly learned to rely upon them? This phase of the subject is mentioned to emphasize the idea that metallic fillings, aside from their tendency to readily transmit thermal changes, have other undesirable peculiarities, and that cement is more comfortable to the tooth in every way.

Teeth with fillings retained in place by the adhesive quality or stickiness of cement have the advantage of a good non-conductor between them and the filling, little or no undercuts in the dentine for retention, no malleting and because the tooth and filling are firmly attached throughout the entire cavity surface, the cavity walls are thoroughly supported.

Compare cavity preparation for metal fillings with the necessary deep undercuts for retention, with the simple preparation necessary for the retention of adhesive fillings, and note the saving in tooth structure near the pulp and the consequent relief to the patient. And this is not taking into account the immense relief to the peridental membrane and time saved to all concerned.

If cement proves so unreliable by itself, and if metal fillings are so often uncomfortable, have we not arrived at a point where to question their general use in large or deep cavities in combination is a mistake?

It would not be true, nor wise if true, to say that all metal fillings would be better tooth preservers if cemented into their respective cavities, but it is unquestionably true that a large proportion of the metal fillings inserted by our best operators would be infinitely better if so treated.

Fillings that show shadows through the tooth shortly after insertion, indicating moisture in the cavity, are probably absolutely perfect except some small defect. If such filling could be removed intact and without disturbing the cavity margins carefully cemented to place, it would undoubtedly last as long as it was expected to in the first place. And even though a cemented filling should arrive at the same condition, it would loosen and come out before serious damage to the vital part could occur.

Several years' experience with inlays has demonstrated positively that a well-fitted filling of any durable material, carefully prepared and cemented to its seat under good pressure, is at least as permanent as any other filling otherwise inserted.

It has been my fortune recently to examine several gold inlays that were inserted more than twenty-five years ago. Some of them are in perfect condition still and compare more than favorably with gold foil fillings inserted at the same time. They had all been inserted in complex cavities in molars and therefore exposed to extreme test; and when we remember that at that time inlays were not in as extensive use as gold fillings, and that the methods and cements were crude, it will be seen that they compare favorably, at least, with fillings inserted by other methods and have merit.

The peculiar action of cement between inlays and the tooth is worthy of much consideration. This thin line or layer of cement is the vulnerable point in all inlays, and of course the finer the union is drawn the less subject it is to disintegration and wear. The fineness of the cement powder used determines the amount of space left, for it is impossible to force the filling closer to the tooth cavity than a layer of the particles of zinc oxide used, because to force it closer, if it were possible, would exclude the cement entirely and prevent a union. It would therefore seem that an exceedingly finely powdered body for our cements would partly, at least, solve the difficulty. But unfortunately, the finely ground powder lacks strength and set very rapidly; therefore there is a limit to that phase of the question.

Pressure on the filling will force out the excess of cement only to a certain degree, and ten pounds is nearly as effective as fifty, and one minute's time about as good as any more in reducing the amount left in the cavity, which is always more than enough to occupy the space left by the removal of the matrix when porcelain is used. This does not alter the general rule that cement under pressure adheres in proportion to the amount of pressure used upon it.

The permanency of inlays depends upon the perfection of the fit, but gold, owing to its ductility, presents commendable features which are not common to porcelain and all cavities not within the lines of vision are more securely protected by it. It is possible to make a gold inlay absolutely fit the cavity, and when made hollow, so that they do not rest on the very bottom, it is possible to get them very close at the margins. Then when it is remembered that it is possible to burnish pure gold very easily when as thin as the feathered edges of the inlay presents, it will be seen that the cement space can be closed over, sealing it in, and if it should occur —as it sometimes does—on the occlusal surfaces, that the cement should be slightly exposed and *wear* out, the force of mastication quickly mallets the thin edges down on to the beveled margins, making an absolute fit again.

Porcelain fillings are less accurate in fit than gold, because the removal of the matrix, to a certain degree, disarranges the exactness of contact, and in certain cavities leaves just its thickness of space on all sides of the filling between it and the cavity walls; and were it not that cement occupies more space than did the platinum foil used, we would have to forsake burnishing and instead swage to an impression for our matrix.

There are many suggestions offered relative to reducing the space left around inlays in simple cavities, such as slanting the walls outward and grinding the bottom of the filling, etc., but when it is known that the cement occupies at least as much space *as did the matrix,* there is little to be said further on that line.

The disintegration of cement is little understood, because of the ever changing conditions to which it is exposed. But for some unaccountable reason, the thin line between the inlay and the tooth seems better protected than when used elsewhere, and on axial surfaces, except a very little at first, does not disintegrate at all. Margins of porcelain inlays that are exposed to occlusal wear seldom last long, because they begin to crumble as soon as the cement wears, which re-exposes the cement, and so on to failure.

There are a few points connected with the insertion of porcelain fillings that will bear repeating. It is understood that such important points as absolute dryness, good pressure on the filling once secured to place, etc., is well known. But the proper preparation of the cement surface of both cavity and filling is of the greatest importance, for it is so easy to soil either of these surfaces while attempting to prepare them that I believe it to be one of the most common causes of loose fillings. One of the final touches commonly given the cavity is to bathe it in alcohol, which is not proper for the final finish, because its action on the usual contents of the cavity is such as to leave a slight film which will prevent a perfect attachment of the cement. Therefore, after using alcohol, renew the cavity surface with either burrs or hand instruments, avoiding the margins.

After the filling has been etched and cleaned, ordinarily immerse it in chloroform to remove any particles of wax that may have been left from the wax used to protect filling while etching it, remove from the chloroform, dry and brush clean. Then place it on a piece of mica and hold it over the alcohol flame and watch it closely. If any wax remains it will be seen to spread or flow in the heat and should be returned to the chloroform and the test repeated until the filling warms up dry and clean. Do not handle it with the fingers afterward.

Cement and amalgam used in combination, beginning first by covering the dentine with a layer of sticky cement, afterward nearly filling entire cavity (keeping the margins clean) with a mixture of cement and amalgam, and at last placing a veneer of amalgam over all, completing the entire operation before the cement becomes hard, gives a filling that protects against outside influences, restores the tooth to comfort, requires no special undercuts, and is one that will wear as long as any other amalgam filling and look better.

The points I desire to make in this paper are:

First. Metal fillings *per se* are not compatable to the tooth.

Second. That the present methods of protecting the vital parts are defective.

Third. Cement is the only really practical protective agent against thermal or electrical action.

Fourth. That when cement is used to unite the filling and tooth, its mission is three-fold: adhesive, non-conducting and supporting.

Fifth. That they are more easily inserted.

Sixth. And finally, when used in places such as good judgment would elect, they are proving better tooth and pulp preservers than fillings not cemented into place.

FAILURES IN PORCELAIN FILLINGS.*

BY WILLIAM HIRSCHFELD, D. D. S., PARIS, FRANCE.

Mr. President, Gentlemen: If I recollect right, it is now not far from seven years since Dr. Jenkins taught us the use of his new material, and such a lapse of time is sufficient for any discovery in our profession to prove its practical value. There is no doubt that this method has become a current part of operative dentistry and that the first-class practitioner can not be recognized as such unless he is very familiar with this work. The only question which remains open in connection with it is to judge the limits in which this material is liable to be successful. Dentists who consider themselves as specialists in inlay work will not hesitate to say: "I use porcelain wherever I can get a good impression," while others who believe more in a metal filling may say to you: "I use porcelain only where esthetic reasons compel me to." Suppose now that both these parties are conscientious enough to carry out honestly every detail of their work, suppose that their inlays fit the cavity to such perfection as not to allow any cement to show, will all that mean success?

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*Read before the American Dental Society of Europe.

Will an inlay never drop out, put in under all these apparently perfect conditions?

In all sincerity this is not the case, and even the most conscientious, the most skillful man, will be exposed, with porcelain, to more failures than if he would use gold in the same faultless manner. What must these failures be attributed to? Is it the fault of the material, or the fault of the work?

Gentlemen, there is only one answer possible. Those who see their fillings drop out, although showing perfect adaptation in the beginning, will find that their failures have been brought about by one, if not all, of the following five causes:

1. Faulty preparation of the cavity.
2. Bad articulation.
3. Disproportion of the inlay in regard to its inner volume.
4. Faulty matrix.
5. Insufficient setting of the cement.

Of these five points faulty preparation is the one which causes failures in by far the majority of cases.

To find the way to what may be considered as a correct cavity preparation, the dentist is placed before the problem, not only how to best protect the cement in the filling against the saliva, but especially how to reduce the cement to a mere secondary factor to hold the inlay in place. The most perfect shape for a porcelain inlay to resolve these difficulties is undoubtedly the form of a cylinder with square bottom, as you see it practically realized by what is known as the Dall's bloc. What characterizes the superiority of such a filling is that a Dall's inlay combines the two features essential for an indefinite durability: By its close adherence to the cavity walls it will need almost no cement to fix it, and in the second place, bottom and side forming two distinct parts, the side will act as a safety-lock to the weak part of the filling. And what must be considered as the weak part in all porcelain fillings is the layer of cement covering the floor where the inlay rests on.

Therefore, it is safe to say that when we wish to prepare a tooth for a Jenkins' inlay, we should make our preparation in a way as to get our inlay to fit the tooth exactly after the Dall's system.

The practical realization of this principle will not meet with any special difficulty in cases where the filling is supposed to close up the defect flush with the orifice, viz.: in labial cavities of incisors and central or buccal defects of molars. Here we simply need to give a square shape to the cavity walls and with a good impression our filling will be perfectly safe. The preparation will be different the moment we enter the chapter of contouring. These cavities are mostly flat, irregular, of more or less half-moon shape, in fact, altogether unfit to guarantee the inlay to stay in place. To change these round walls into square ones may look at first as the desirable thing to do, but such a radical way of proceeding would weaken the tooth in parts, would cause a great deal of pain to the patient and on the whole is quite unnecessary. What we want here to approach as near as possible the telescope shape of the Dall's model is to give a square form at least to the upper part of the cavity walls. To accomplish this well the preparation for these contour inlays should be done systematically in the following order:

Commence the operation by removing with chisel and files all brittle parts of the enamel; this will give us immediately a general outline for the future filling. Then with spoon excavators remove all soft decay and you are ready for shaping the inside of the walls; this should be done with the machine. With burs suiting the dimensions of the defect let us give a straight form to the portion of the cavity walls near the opening, producing that way the desired division between the floor, remaining round, and the side. And when you come to think of it, you actually see that this preparation shows with a slight modification the principle of the Dall's bloc. Such an inlay will close hermetically the orifice of the cavity, and at the same time with its close adherence to the walls will keep the floor perfectly safe from the injuries of the saliva.

Now, we can think of the next step, namely, to give a perfect finish to the outline.

We must always bear in mind that only the thinnest kind of an edge will allow of neat contouring and that this edge must not show any level parts on its surface. Some typical difficulties will present themselves nearly always here, which—if neglected—will cause failure of the inlay. They concern those parts of the tooth border where the enamel forms great thickness. No time must be spared to continue the thin walls of a bicuspid right along over the cusps, or carry out the thin outline of a proximal incisor cavity round the cutting edge corner or the lingual side. This will give us the occasion to avoid at the same time another cause of frequent mistakes; when we wish to get a matrix out of proximo-occlusal cavities in molars or bicuspids, the thickness of the cusps may possibly form an obstacle by their convex position to each other. If you take time to carve out freely these thick parts and thus gain a straight, direct wall all round, your matrix will slip out without any danger of getting deformed, and the apparent loss of time will amply be recovered.

As a last thing, we have to make our thin outline as smooth as possible. It is well to commence the shaping with ordinary finishing burs and use Arkansas points only to smooth off. A final going over with pumice-stone will make your preparation perfect and ready for the impression. But before this an important question arises—Will the articulation allow the inlay to last?

As a general rule, inlays must never come in contact with the antagonist, and the thickness oi writing paper should be left between. To obtain this neutral space we can either grind the porcelain or the corresponding tooth. As any grinding of a well glossed inlay should be avoided, it is better to grind the antagonist. This should be done before the impression is taken, in order to see that the cavity border is kept free from impact. With front teeth this is easy to do, as the slight filing of a lower incisor-edge will certainly not injure the tooth. But with other teeth this way of proceeding may become more complicated. To get an upper molar or bicuspid free from contact means grinding down a considerable part of the lower cusp, and that might possibly cause sensitiveness of the tooth. What seems to me preferable in such cases is to sacrifice slightly the appearance of the tooth by shortening a trifle the walls of the cavity. This may at first apepar a drawback, as the look of the finished inlay will not be as perfect as we may desire. But, taking into consideration that a strongly pronounced articulation will certainly expose the filling to too much strain and eventually cause its failure, it is certainly preferable to tolerate a less perfect appearance. This problem raises at once another important question: Where is the limit of size for an inlay?

Suppose we leave the necessary space between the porcelain surface and the antagonist, it stands to reason that any hard food which gets between the two, will act as a powerful lever on the filling and be liable to lift it gradually out of its place. This danger augments in proportion to the amount of exposed surface of the porcelain and puts at once a limit to inlays of abnormal size. Those large contours can be made with safety only when there is no antagonist or where the porcelain leans against the neighbor tooth. In these last cases the filling will find a sort of support ready to counteract the force of mastication. But wherever the articulation is unfavorable, and a tooth stands free from others, we must limit our inlays in such a way that the exposed part shall not be larger in volume than the invested portion. This difficulty will often be hard to overcome in large defects of front teeth. In our desire to restore all the missing tooth substance we will certainly go, with these fillings, beyond the safety point. This is especially the case in incisors with the pulp alive and consequently offering less chance of deepening the cavity for sufficient anchorage. If we restore the tooth to its original size the result will be, in the majority of such cases, to see our patient sooner or later, either with his inlay in his pocket, or, what is still worse, partly broken—unless the patient has not already gone to consult another dentist. And this other practitioner will examine the case and explain to the patient precisely what we should have done before commencing the work, namely, that in this special case an entire restoration of the tooth can not possibly last, but to be satisfied with a partial contour. These accidents have undoubtedly happened to all of us and are liable to happen again, until we limit the optimism of our prognostics for porcelain inlays exactly to the point where our judgment will be in accord with the conditions of the cavity.

With all these preparations we are now ready for the impression.

You will hear many practitioners speak of the matrix as the most important, if not the most difficult, step of the whole operation. This is not at all my opinion. To make a well-fitting matrix by means of gold-foil is a simple affair of routine which every dentist can do with experience. After all, a matrix, no matter how well adjusted, can do no more than reproduce the form of the cavity, whether that form is right or wrong. A thorough preparation will make the taking of the impression very simple.

There is, however, one point which must be treated with particular attention.

A perfect matrix should reproduce distinctly the entire outline of the cavity. To accomplish this we must burnish the overlapping surplus of foil close to the outside of the tooth. This requires special attention near the cervical margin, as the gums may interfere with the gold. If this part of the cavity is not freely exposed we will never be able to get our gold over this edge between the gums and the tooth. The result is that the gold will rest against the gums; that the porcelain can not be burnt to a sharp line and will form a shoulder, which, if not removed, will bring on an inflamed condition of the gums. Grinding off can remedy this fault to a certain extent, but will never form the inlay to a perfect line with the tooth.

Under these conditions it is preferable to wait for the impression until we have pushed the gums sufficiently out of the way.

In ordinary cases one single dressing of cotton or gutta percha will do the work. In deeper defects—and this concerns frequently labial cavities—we need several applications, taking from four to six days, to get the cervical border well exposed.

If I am not mistaken, it was Dr. Bruck, of Breslau, who first advocated the use of amalgam in connection with very deep cavities reaching far under the gum line. He proposes to fill up these underground parts with amalgam, polish and trim it the next day in order to gain an artificial border for a perfect impression. This suggestion will certainly be of great service, but I should like to see it limited only to extreme cases, and this for two reasons: The presence of amalgam will produce a discoloration of the tooth near the gum line, and above all I am of the opinion that porcelain will preserve those places below the gums from recurrence of decay better than metal. As recent years of experience have taught me, porcelain must be considered as *the* material to certainly preserve the cervical margins. For this reason it should come into more general use and not be limited to cosmetic purposes only.

One last point remains to be mentioned briefly, as liable to cause failures, and this concerns the cement.

All our efforts have been concentrated up to now on one purpose, and that is, to get an inlay to fit and close hermetically the cavity. But unfortunately we have to set it with a material which up to the present time has not been perfected sufficiently to resist the action of saliva. This consideration forces us to use it only with the greatest precaution and does not allow of exposing it too early to the fluids of the mouth. As we can not employ it as thick as for ordinary fillings, we must always remember that the time of its setting will increase in proportion to its thinner consistency.

Thin mixed cement will require from about fifteen to twenty minutes to harden and nothing but rubber dam will keep the tooth dry for such a time. It is for this reason that a porcelain filling should not be undertaken unless the operator is able to apply the rubber dam to set it. A layer of hard wax, such as we use for preparing gold sets for soldering, will to a certain extent keep the saliva from an inlay. But to count on this doubtful protection to the soft cement is a mistake which sooner or later will be paid for by the loss of the inlay.

You see, gentlemen, that every detail of inlay work demands from us a greater display of patience and conscientiousness than almost any other branch of dentistry. It is safe to say that porcelain work is comparatively simple, that any man with ordinary skill will be able to do it. But to reach that degree of perfection which distinguishes the inventor's personal work to such a point that it has become the admiration of our greatest gold fillers on this side of the water as well as in America, such artistic operations require more minute care and attention than even the filling of teeth with gold.

And if in conclusion I may be pardoned by you, gentlemen, for passing for once the limits of modesty, which, as a new-comer, I ought to observe, I can not help but say this:

The art of gold filling has come, in Europe, to the same perfection as in America, and that, thanks to the efforts of the members of this Society; the art of porcelain filling is past its successful début in dentistry, and it remains largely with the same men who have advanced American gold filling to what it is at present in Europe, to become the pioneers of this new branch of our profession.

THE POETRY TO BE FOUND IN THE PRACTICE OF DENTISTRY.*

BY JAMES WILSON CORMANY, M. D., MT. CARROLL, ILL.

It was my pleasure some few years ago to write a short paper for this society, entitled "Success." You received it very kindly. Again it was my privilege to write a paper for the Illinois State Dental Society on "The Beauties of a Country Practice," and the greatest compliment I received at that time was that I was making a grand stand to sell out, and now comes your chairman of the executive committee and says: Give us a paper on the poetry to be found in the practice of dentistry, showing conclusively to me, at least, that all my friends are convinced that I enjoy the profession in which I am engaged, and get out of it pleasure and happiness as well as dollars, and I am firmly convinced that should I be in any other business it would be the same. I am reminded of one case in particular where the first paper took such decided effect upon a brother dentist that he wrote me for further instruction pertaining to the subject; that he had succumbed to nervous prostration in a southern state and had moved to a western one, but discouragement and ill health still pursued him, and after three months' correspondence along those lines brought him to himself, and he was completely restored to health in mind and body and success in business assured. As a result of the second paper, I have every reason to believe that the encouragement given to the country dentist has changed many in their thoughts with reference to the slowness sometimes prevailing in the country town, and bade them look within for that peace which passeth understanding, and while I do not particularly like the subject of the paper, I trust the contents may induce some of you to look differently at the profession you have chosen as your life work. Life work, did I say—why not? Yes, never give up and sit down to await death, but die in the harness. If you tire of dentistry after practicing for fifty years, do something else, but always be interested in some work. "A change of occupation is rest," they tell us. I have found it so. For seven years I have given a great deal of time, evenings and Sundays, to the subject of metaphysics and practiced, to some extent, along those lines to my great gratification and satisfaction, assisting many a weary traveler to a more delightful journey, healing the sick, clothing the naked, feeding the hungry, and binding up the wounds of the afflicted. Now with this introduction, you must already anticipate approximately what I am about to give you.

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*Read before the Northern Illinois Dental Society, October, 1903.

"Poetic side of dentistry?
What they would ask seems vain,
Write poetry of misery,
How can we sing of pain?"
Thus pondering in the office,
I saw the dental chair,
The muses then awoke and sang
Of troubles ended there.

There came a lady's lovely face,
All drawn awry with pain.
I sang my mission is to bring
Smiles on that face again.
The maiden came with hollow cheeks,
Where molars had been drawn;
"The space you fill, the cheeks make round,
And fair to look upon.

"The merchant sells his merchandise
To rich and poor for gain,
It is your mission to exchange
Comfort and ease for pain.
The deadly poison has its place,
The forceps, they are kind,
Though feared by those who seek their help.
No better friend they find."

It would be a senseless notion to think for one instant that the practice of dentistry was one continuel drudge with no sunshine. All work is a delight, if you love the occupation, and the practice of dentistry is so interesting these days that a day of moil at the dental chair is a pleasure, especially when you know just what to do in any given case. I will admit that the beginner has not this privilege of knowing just what to do, but if he will learn early to say, "I do not know," when he does not understand, his practice will prove a great blessing.

Again there is poetry to be found in the practice of dentistry in not being jealous of your neighbor. One tree is not envious of another, and they nod and bow to each other with every passing breeze, and then as they look higher and draw from the great universal life force, they gain strength for each new condition presented. Let us state the case fairly. The young man makes up his mind to be a dentist. He sees the old practitioner with his diamond ring and shirt stud; he observes that he dresses well, drives a good horse, or, perhaps, an automobile. his companion by his side and may be two or three children to bless his home, and he says, "Surely the dentist has a happy time, goes to his office at 8 a. m., closes at 5 p. m. and off for the country air." He sees the poetry in the practice of dentistry exemplified in the external. He visits the office; he finds the same dentist at work early making a beautiful crown or bridge, and as he watches the development of this piece of artistic work, he thinks this dentist certainly has the poetry of dentistry in the finished denture. Now, may be it has taken this same dentist many years of close attention to develop the skill to do this work easily and get enjoyment out of his occupation. He has had to overcome many habits, and form new ones. Work is not a curse, and in overcoming the habits and the labor attending he has found poetry every day, and he has mastered the work and not allowed the work to master him. He has learned to love his occupation and the successful mastery of each piece has brought him much calmness and joy, and as he progresses in his business, each success attracts new successes and a calm demand brings all things, provided we are ready to receive it. The only disgrace about work is the failure to do it well. and if we learn to accomplish that feat easily, the practice of dentistry is a pleasure all the day long. One source of enjoyment in the practice of this profession is to like the business. If you dislike it, you are a man divided against yourself, but raise the business, put joy and kindness into it, and make joy and gladness a part of yourself and the poetry to be found in dentistry will come bubbling up and out day by day. Some may say, "I need so much in my business that it hinders me." Translate your needs into wants and obtain them. It is not the hands on the clock that makes the machine go inside, but it is the machine inside that makes the hands go; and so it is your thoughts that make you go, either for pleasure or pain, and remember always, "As a man thinketh in his heart so is he," and "thoughts are forces and each creates of its kind whether you believe it or not." If you hold thoughts of failure for your business that is the kind of business you will obtain, but let us have this for our motto "Thought being the greatest known power, let us think rightly that we may act justly and live harmoniously." A desire for a thing indicates that the thing exists, and that you have the ability to obtain it; it is the thoughts you hold that bring the material manifestation. You may doubt some of these statements, but they are true, nevertheless, for I have proved them time and again in many ways. I not only want to show you the poetry to be found in the practice of dentistry, but I also wish to teach you how to obtain it, for this paper would be for nought did I not do this. Now then, you will all admit that like attracts like, and if successful thoughts are held, they attract success, not only in the doing of your work, but in your state of mind while the work is going on, and as you admire the bridge you are assembling and see the "shiners" that are to come for each tooth as you put it in place, what are these but thoughts of wealth attracting wealth itself, and when the thought flow of this kind is checked or impeded the poetry of dentistry fades away. All this seems very strange to those who have neither thought or reasoned on the subject, but to those who have, it is marvelous. I wish more of you would seek an understanding of this beautiful way of looking at things, because it is not pleasant to leave so many charming people behind; but if they will not give this subject any consideration and condemn without investigation, the loss is theirs. We have nothing to fear and everything to hope, and the scholarship is given to the one best prepared to receive it. Have faith, "Faith is the substance of things hoped for"; that which you want you will create; that which you need you shall have. If you have no faith, you will not progress. You can grow in your faith. You will rise to your faith. In silence you attend to your own business, no blowing of trumpets, thoughts go forth, the great law of attraction does its work and you have business. If you love dentistry and love nothing else, you are a one-sided man. A good dentist is not always a good man. Be both a good dentist and a good man. Had I the power, I would take every man to pieces and put him together again on a higher plane of organization. I may throw the treasury of the world's happiness before you, but I can not make you take it. You must make your own application. For another to benefit from what I believe to be true, he must test it for himself, and if all this turns out a delusion, I shall be happy to assist in digging its grave. Let us then hang bright pictures in the mind, take down the old hateful, jealous, despondent, mental pictures and make a bonfire of them. The great universe is full of all our needs, only make ourselves receptive to them. A jug tightly corked, placed in water and completely surrounded by it can never fill with water until the cork is removed, when it will instantly fill, exclaiming all the time it gurgles, good! good! good! as the water enters. You are the same and all the good things will fill you full if you just come with a willing heart and unprejudiced mind. Elbert Hubbard says:

"What is it wins? Work, you say, but you are wrong. It is desire that brings every good thing. Did you ever watch a cat about to spring for a bird? The cat does not think about working to secure that bird; about how to place its body for the most graceful spring—not that. It is just filled with the desire, and it does exactly the proper thing—the single-hearted thing. Rabbits can run faster and farther than cats, but rabbits never catch birds—they do not desire to." The poet says:

"The stars come nightly to the skies,
The tidal wave unto the sea,
Nor time nor space, nor deep nor high
Can keep my own away from me."

It is a cruel philosophy which teaches that man is dependent entirely upon his own unaided effort in the struggle for existence. I believe thoroughly in the universal heart, and consequently experience no fret or worry when my affairs seem to go wrong. Neither do I sit down and expect the universal to do my work; that is not its province. It will not do my work, but will support me in my task. Knowing this I rise and face the situation, drawing poetry in every move I make. In these times of search and research, people find just what they hunt for. If they seek turkey and cranberry sauce, they find it. If they look for ice cream and cake, they get it. If they expect roses and violets, surely they are in their pathway. It is difficult to convey a hint of this truth to any but those who are prepared to receive. A quotation from the Law of the New Thought can bring it better before you: "It stands for all that makes for man's betterment—freedom, independence, success, health, happiness. It carries the banner of tolerance, broadmindedness, brotherhood, love, charity and self-help. It teaches man to stand upon his own feet—to work out his own salvation, to develop the powers latent within him—to assert his real manhood—to be strong, merciful and kind—it calls upon man to cease his lamenting and repining and urges him to stand erect and assert his right to live and be happy. It teaches him to be brave, as there is nothing to fear. It teaches him to abolish fear, thought and worry, and the other foul brood of negative thoughts, such as hate, jealousy, malice, envy and uncharitableness, that have been keeping him in the mire of despair and failure. It teaches him these things and much more."

As the renowned American sage, Andrew Jackson Davis, has said in the Great Harmonia:

"Be free to make uninterrupted spiritual progress, eat, drink, sleep, rise, work, walk, read, observe, feel and think to that end alone, and secure to others what you would yourself possess and enjoy. The most experienced and successful navigator in the boundless sea of mutual discovery is he who, having perfect and reverential faith in the highest, takes Love for his ship, Will for his pilot, Integrity for his ballast, Truth for his freight, Liberty for his mate, and Knowledge for his captain. But the happy navigator himself, the sole proprietor and commander in chief of all the forces, is this impersonal and omnipresent intercessor whom we name wisdom."

And remember:

"It takes great strength to train
To modern service your ancestral brain;
To lift the weight of the unnumbered years
Of dead men's habits, methods and ideas;
To hold that back with one hand, and support
With the other the weak steps of a new thought.

"It takes great strength to bring your life up square
With your accepted thought and hold it there;

Resisting the inertia that drags back
From new attempts to the old habit's track.
It is so easy to drift back, to sink;
So hard to live abreast of what you think!

"It takes great strength to live where you belong
When other people think that you are wrong;
People you love, and who love you, and whose
Approval is a pleasure you would choose.
To bear this pressure and succeed at length
In living your belief—well, it takes strength,
And courage, too."

PORCELAIN INLAYS.*

BY S. J. KNOWLES, D. D. S., CHICAGO, ILL.

Mr. President and Members of the Odontographic Society: My subject tonight is on the comparative value of porcelain as a filling material for teeth, and a method of making such a filling.

The object of filling teeth, as we all know, is not only to replace lost tooth structure, but, as far as possible, to prevent future decay. Until recently, gold, amalgam, tin, cement, gutta percha and a few other materials have all been used, each with advantage varied according to their location and to the skill with which they were manipulated.

This audience is, without doubt, quite familiar with inlay work, but I wish at this time to again call attention to some of the advantages that a porcelain inlay possesses over any of the abovementioned materials:

First—Greater immunity to recurrent caries.
Second—Better appearance.
Third—More perfect restoration of contour and contact points.
Fourth—Better compatibility.
Fifth—Non-conductivity of thermal changes.

In speaking of recurrent caries, I want to refer you more especially tonight to that class of cavities which give us the most trouble, namely, the proximo-occlusal cavities in posterior teeth.

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*Read before the Odontographic Society of Chicago, January, 1904.

Recurrence of decay around metal fillings in such cavities is a condition so frequently observed that it is quite discouraging. On the other hand, recurrence of decay seldom takes place around cement fillings in similar cavities. The one great disadvantage of cement is its gradual loss in bulk, destroying the shape of the filling and causing loss of proper contact. This is, to my mind, almost as serious as recurrence of decay, at least so far as causing discomfort to the patient is concerned.

Cement in a cavity usually does not waste or wear from the margin as much as from the center, but wears with a cupped-out effect, a thin layer still remaining to protect the dentine. The wearing out of cement in this manner is a very significant factor in inlay work, to which I shall refer later on.

The greater immunity to recurrent decay peculiar to the inlayed filling is due, no doubt, to the sealed condition of the tooth with cement, while with any of the metal fillings it is a question of adaptation to the cavity walls. Any expansion or contraction of a metal filling at once allows the admission of micro-organisms within the margins of the cavity. Such a contingency is impossible when an inlay is used.

The cement joint about an inlay is considered its weakest point. but time and the clinical experiences of so many different men who do inlay work have quite clearly demonstrated that recurrence of decay is much less likely to occur around an inlay than about any other filling. Understand me, however, to be speaking of a good-fitting inlay when I say this, and not one where it is possible to insert a piece of metal of the thickness of say twenty-six or twenty-eight gauge between the tooth and the inlay, for in that case I do not feel there is much of an advance over a common cement filling.

It has been my observation that as wide as the joint of cement is, just so deep will the cement wear and cup out, and no deeper. For example, we have a margin about an inlay that measures one-sixty-fourth of an inch in width; in a short time I would expect to see the cement in that case wear out to the depth of about one-sixty-fourth of an inch and with a cupped-out effect. Reduce the width of the margin and I believe the depth to which the cement will wear is also reduced, so that when an inlay is made that fits the cavity perfectly and without any visible intervening space at the margin, we have the best results. If the cement in the joint about an inlay does wear or waste to about the same depth as the joint is wide, we can see the importance of a perfect-fitting inlay.

In dwelling upon the importance of a perfect fit (so called) I am referring to the large restorations in molars and bicuspids. It is not difficult to obtain good-fitting inlays in small cavities wherever situated, because where very little material is used we have imperceptible shrinkage. It is in large cases in molars that it is often very difficult indeed to obtain a good fit without giving to it a great deal of time and hard work. I must say, and with especial emphasis, that unless an inlay does fit well we are liable to have a failure.

Where the joint is not perfect, and where after a time the cement wears and cups out, the porcelain filling then, as well as the tooth, is not protected as it was before and under mastication breaks down. This breaking down of porcelain does not appear to take place when the joint is good. Margins of a good-fitting inlay are not left without protection, because there is practically no cement to wear out.

The better appearance of a porcelain inlay is certainly a great advance over any of the other methods of filling, but the qualities in any filling most desired are its decay-preventing qualities, which an inlay possesses. The artistic accomplishments in an inlay are many and certainly most gratifying, but are not the most important.

I consider the more perfect restoration of contour and contact points as one of the greatest advantages that a porcelain inlay possesses, a condition so often entirely disregarded when a metal filling is used.

The non-conductivity of thermal changes and better compatibility make it possible to insert a porcelain inlay into a living tooth that would not tolerate any other kind of a permanent filling and remain in a healthy condition.

The accidental dislodgment of inlays may be attributed to the following causes:

First—Failure to thoroughly desiccate the cavity.

Second—Failure to properly groove and roughen the back of inlay.

Third—Imperfect mixing of cement.

Fourth—Too much occlusion.

Fifth—Disturbance of inlay before hardening of cement.

The thorough desiccation of the cavity and the proper grooving of an inlay are points that can not be too strongly emphasized. I wish to describe in detail a method that I follow. The porcelain inlay is first roughened on the cavity side with a small inverted cone, S. S. White Gem cavity trimmer, being careful to remove all the glaze except just at the margins. A thin vulcocarbon or a diamond disk, kept wet, is used to groove the back of an inlay wherever it is possible to do so without weakening the porcelain. Alcohol is applied to the inlay and the inlay dried with air.

The cavity is now prepared for the inlay by applying a napkin, cotton rolls, or, very rarely, a rubber dam to exclude moisture. Ninety-five per cent carbolic acid is first used for disinfection, after which alcohol is freely applied and desiccation with warm air begun. Sharp spoon, hoe and hatchet excavators are used for the purpose of removing any small bits of gutta percha, talcum powder or decay that may be in the cavity, and also for roughening the walls. Chloroform is used in the cavity at this stage to remove any fatty or oily substances that may have remained. When the desiccation of the cavity has been completed it is ready for the inlay.

Cement is then mixed to as thick a consistency as it is possible to have it and still be able to squeeze out all surplus when the inlay is set. The inlay is covered with cement, as well as the cavity, and then forced to place and held there for several minutes under pressure, when—without any attempt to remove the surplus cement—the entire mass is covered with hard wax and left for three-quarters of an hour.

The cement will have completely crystallized by that time, and may be removed without any danger of loosening the inlay, a procedure that is quite dangerous when the cement has only partly crystallized.

If an inlay is made to properly fit a cavity, is properly cemented into place and all the details carried out very carefully, you will find it a difficult task to remove it. Some of you may ask why I have had occasion to ever remove an inlay, which I will answer by saying that I have had several different reasons. Some were removed on account of poor color, some on account of fracture, probably due to thin pieces of porcelain or to the fact that they had not been thoroughly fused. Some I have removed because of not having been built out sufficiently. In each case in which I have removed an inlay or parts of an inlay I have found it a very difficult task. This clearly demonstrates to me that if properly made and set an inlay is a very permanent filling, in fact much more so than any other filling used today, for the reasons I have stated.

It is my privilege from time to time to see gold and porcelain inlays that have been standing from eight to twelve years, and almost every day I see those that have been in from one to four years and less.

On the 20th day of last November I very carefully examined a large gold inlay that was made by my preceptor, Dr. Wassall, in 1891, in a lower first molar, involving almost the entire occlusal surface and half of both the buccal and lingual surfaces. I found the inlay in perfect condition and preserving the tooth against recurrent caries, while a gold filling in the same cavity would have, no doubt, shown wear and its shape distorted, with possible recurrent decay. All the inlays I have seen were preserving the teeth perfectly, with the line of cement still visible. Although the cement has worn out somewhat at the margins, it seems to have worn no deeper in any of the cases than the margin was wide. With the improved methods and appliances we have now it is possible to make much more perfect fitting inlays than the old ones to which I have just referred.

As to the limitations of porcelain inlays, I believe there are many places where they can not successfully be used. For instance, in such cases where it is impossible to obtain sufficient bulk of material to insure strength, where the bite is unusually hard, and in the case of young children where cusps are long. In such places as these I consider the use of a gold inlay preferable.

The opportunities for using porcelain inlays in the posterior teeth are very great, but considerable judgment must be used in deciding. I do not believe in any one material as being the one and only one, but I most sincerely feel that in carefully selected cases a porcelain inlay, properly made and set, is the most nearly perfect filling.

I consider some of the most important factors in successful inlay work to be as follows:

First—Perfect fit.
Second—Sufficient bulk of material to insure strength.
Third—Proper preparation of cavity.

To obtain a good-fitting inlay I have been most successful in taking an impression of cavity in cement and doing the entire work in the laboratory on cement and plaster models, away from my patients, the process of which I will describe later on.

Sufficient bulk of material is procured at the time the cavity is prepared.

Proper preparation of a cavity consists, first, of course, in cutting or breaking down all frail enamel walls with chisels or burs, the removal of all caries and the shaping of cavity with burs or stones in order to have a flat base and a seating place for the inlay. This is done so as not to depend entirely upon cement for anchorage, which is necessary where a cavity is made shallow or saucer-shaped. Cementing an inlay into a cavity with a flat base is also much easier, and the inlay is more certain to go to its seat under pressure than in a cavity with a rounding or saucer-shaped base.

Another point never to be lost sight of in the preparation of cavities for inlays is the necessity of making them slightly larger at the enamel margins than at the base or bottom, so as to have no undercuts. The walls of the cavity should be as nearly perpendicular as possible and smooth, so that a matrix or an impression will be sharply defined and easily removed without bending.

Cavities in the anterior teeth should be slightly larger at the lingual surface than at the labial, so that an impression may be removed from the lingual side of tooth. Preparing a cavity for an inlay is a problem that requires a great deal of thought and ingenuity, and, I might say, is best worked out as each different case is presented, observing, of course, the fundamental principles necessary in all cases, but varied according to the case in hand and the individuality of the operator.

In preparing cavities for inlays I use burs and excavators simply to open into the cavity, practically doing the entire preparation with corundum and gem-stone points of different shapes and grits. Occasionally I use plug finishing burs, diamond points, Arkansas stones and small enamel margin files, all of which are very useful in certain cases.

I wish now to describe the process of making a porcelain inlay by taking an impression of the cavity, following the swaging method. After a cavity has been prepared, and while the tooth is still wet, you decide on the color of porcelain to be used. A bite is then taken in modeling compound, to be used as a guide in contour and occlusion, after having been poured in plaster of Paris. In case the cavity be in an anterior tooth, only an impression of the lingual surfaces need be taken. The cavity is now dried, using a napkin, cotton rolls or a rubber dam, and then thoroughly rubbed with pure talcum powder to prevent adhesion of the cement, which is now to be used in taking the impression. A stiff copper matrix is adjusted between the teeth, as thick a one as the case will allow, when cement, mixed to about the same consistency as for a filling, is rolled in talcum powder between thumb and fingers and pressed into the cavity. Instruments having straight or parallel sides and blunt ends are to be used for this, and not ball burnishers, being careful all the time to hold the matrix carefully in place. Considerable pressure should be used in taking the impression.

When the cement becomes hard and brittle, which requires about three minutes, the impression may be easily removed, provided there are no undercuts in the cavity, by first removing the matrix, which for cavities between the molars and bicuspids is so bent as to be slightly larger at one end than at the other.

In taking impressions between the anterior teeth a matrix bent like the letter "L" is used, with the short angle on the labial surface of tooth, forcing the cement in from the lingual surface. After the impression has been removed the cavity may be filled temporarily with base plate gutta percha and patient dismissed. We should now have a perfect impression in cement and a good bite in modeling compound.

The next step is to invest the impression in plaster of Paris to protect any frail extensions of cement past the cavity margins, also to make it easier to handle. As soon as the plaster has hardened, the impression is so trimmed as to show but little more than the margins of cavity, in order that invested impression may have no undercuts to hinder in making the top or model of cavity in cement. The trimmed impression, set in plaster, is now rubbed with pure talcum powder, when more cement is mixed the same as for the impression, using a different color if you choose. The soft cement is forced down over impression with considerable pressure, being careful to have sufficient bulk to prevent cement from fracturing in subsequent swaging. The cement top or model should only remain until cement has thoroughly crystallized and no longer, when it is removed by prying or loosening with a thin-bladed instrument. The model or reproduction of the cavity, which has been obtained in cement, is invested with plaster of Paris in a small round metal tray, called a bed plate, a part of Brewster's inlay swaging outfit, and the surplus plaster, when hard, trimmed down smooth.

The cement model, which is practically an exact reproduction of the cavity, is ready for the process of swaging the matrix in place, provided the plaster has been allowed sufficient time to thoroughly dry out. A piece of platinum foil, one one-thousandth of an inch thick, after having been thoroughly annealed in an electric oven, is placed over the cement model of the cavity and partly burnished or swaged to place with a tightly rolled piece of cotton, held in a pair of heavy foil carriers. The model and platinum, with the cotton still in position, are placed in the inlay swager and the platinum foil partly forced to place, using a good deal of pressure in swaging. The platinum is then removed from the model to be annealed again in the electric oven. Now for the second time the matrix and model are placed in the swager, this time without any cotton, and the matrix swaged to place. The model is again removed from the swager and the margins of matrix burnished with burnisher, which not only more perfectly adapts but tends to thin the platinum at the margins of the cavity, which is very important. After being burnished the platinum matrix is removed from the model and trimmed so as to only overlap the margins of the cavity about one-sixteenth of an inch. The matrix is annealed for the third and last time, when it is forced perfectly into place in cement model by the rubber water-bag plunger of swager, leaving a well-adapted matrix ready to be filled with porcelain.

The baking process usually requires not less than three bakes, sometimes four and five, depending chiefly upon the size of inlay. The first bake consists of a high-fusing foundation body, sometimes, however, in very large inlays two foundation bakes being necessary.

At this first bake I find in large proximal cavities I have been able to overcome a great tendency toward shrinkage by grinding a piece of porcelain tooth to exactly fit from one margin to another. The porcelain rod, which is higher fusing than the foundation body, mechanically reduces the chances of the platinum matrix from being drawn together at the two margins of the cavity.

After this first or foundation bake, the matrix, partly filled with fused porcelain and porcelain rod, is again placed into the cement model and swaged down, so as to force the platinum back to the margins of cavity in case there has been any shrinkage, which there invariably is, but which may be entirely overcome by repeated swaging between each bake and use of porcelain rod, as just described.

The second and third bakes are made, using high-fusing enamel bodies, varying in kind to the color desired.

The inlay is built out to about the contour desired with enamel bodies, being guided in .contour and occlusion by the plaster model made from the bite taken in modeling compound.

The third and last bake is now made, unless, of course, more contour is necessary or there has been more shrinkage. The time of baking varies according to the size of inlay. The inlay is swaged after every bake except the last, when, to allow perfect annealing of porcelain, it ought to remain in the furnace until thoroughly cool.

THE DENTIST HIMSELF.*

(PRESIDENT'S ADDRESS.)

BY CLAUDE B. WARNER, D. D. S., AVON, ILL.

We read of the duties a dentist owes to his patients, his profession, his society, and the world at large, but we do not often hear of the duties a dentist owes to himself. Nor should we regard this subject as a selfish one, for he who would be a power among others must first be a power himself. When we reflect that it is the intention which gives character to an action, and find a dentist who regulates his conduct in accordance with his own interests, we are not to judge him as selfish. He only is selfish who regulates his conduct with an eye single to his pleasures. In our present stage of civilization, we are bound to each other by a thousand invisible threads forming a web impossible to break. If we succeed, society at large is helped; if society succeeds, we share in that success provided we do not run our course counter to the natural laws of society. This, then, is our ethical excuse for considering this topic, of which we ourselves, are the subject of investigation.

The first duty a dentist owes to himself is sincerity, as Shakespeare says: "To thine own self be true, and it must follow, as the night the day, thou canst not then be false to any man."

In any investigation, to be accurate, we must have all the data clearly before us; so in the analysis of ourselves we must have no subterfuge, but expose our principles and actions clearly to view.

It is a rare gift for one to be able to accurately judge himself. We either underrate ourselves through diffidence, or overrate ourselves through pride. We do not like to submit our frailties to a cold world, nor even to ourselves, yet it is essential if we are to make progress.

The second duty a dentist owes to himself is to establish a working rule or hypothesis whereby he can strengthen his weak points.

Mr. Benjamin Kidd in his recent work entitled "Western Civilization." sums the matter that our duty is to "Do what we can for the accomplishment of good for the present generation and for future generations." This conclusion is not mere cant, but the scientific deductions of a brilliant investigator and as such deserves our attention.

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*Read before the First District Dental Society of Illinois, Macomb, September, 1903.

We know in the filling of teeth there are certain mechanical laws which we must observe to do our work well; so also in the realm of moral philosophy there are natural laws as inevitable and as accurate as in the sciences. The rule reached by Mr. Kidd through scientific investigation has the added endorsement of all the religions of the world from time immemorial. Therefore we may conclude it is as safe as a working hypothesis as any we could probably find.

If the young dentist starting in life has for his aim the "Doing of good for present and future generations" he will succeed.

That success will be in direct proportion to his adherence to this aim, and the efforts he puts forth to accomplish it. As Tennyson says: "Self reverence, self knowledge, self control, these three alone lead life to sovereign power, yet not for power; power of itself would come uncalled for; but to live by law, and because right is right to follow right is wisdom in the scorn of consequence."

To attempt to define all of the duties a dentist owes to himself would be beyond the scope of this address, but we may mention as important items: Health, adherence to advanced thought along all lines, active reform work, original investigation, and an honest attempt to lead a happy life.

We are living in an age that appears as a selfish one, but he who reads the signs of the times sees only the transition to a better state of affairs. Under the law of competition we are all forced to continue the struggle lest we lose, and yet there are moments when it is well that we pause in the race to look after the dentist himself.

PRACTICAL THERAPEUTICS.

PERIDENTAL INFLAMMATION.

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO.

Before discussing the therapeutics of pericementitis, I desire to state that this condition is too frequently produced by carelessness on the part of dentists. The cause of many cases of peridental inflammation can be traced to the misuse of drugs, ill-fitting crowns and bridges, malleting, faulty occlusion, etc. However, it is not always possible to perform dental operations successfully without irritating this susceptible membrane.

There are many circumstances which modify the effect of drugs, causing them to act differently upon different individuals, and especially upon different tissues of the body. Occasionally the peridental membrane becomes highly inflamed and extremely sensitive from the action of arsenic. In the removal of pulps by pressure anesthesia, care should be taken to use a sterile solution and have the dentine well sterilized; also avoid forcing the solution further than is necessary to painlessly remove the pulp. As has been stated in my article on "Sensitive Dentine," cocaine is a protoplasmic poison; and, if forced through the apex of the root into the tissue beyond, even though the solution be sterile, pericementitis will always follow. At least this is my experience in the use of this method of removing pulps. A frequent cause of this condition is micro-organisms that have escaped from a putrescent root canal or that have been introduced by the removal of the pulp tissue. This particular kind of pericementitis is known as *septic pericementitis,* and is closely associated with *incipient abscess*; therefore the treatment will be considered under this heading in a later article.

As has just been stated, a common cause of apical pericementitis is the injudicious use of drugs. In connection with the subsequent treatment of teeth, after removing the pulp tissue, I stated that in those cases where it was not advisable to fill the canals immediately on removal of the pulp, an anodyne treatment was indicated. Extreme care must be taken to select drugs which have a soothing and not an irritating effect. There are some instances where we desire to irritate and thereby stimulate the peridental membrane;

but this is one place where this should be avoided. Judgment must be exercised in sealing anodynes such as oil of cloves, carbolic acid, etc., in the canals, especially in bicuspid and molar teeth; for should the filling be left too full and the agent forced through the apex by the closing of the jaws, even these agents will cease to be anodynes and become irritating. Whether oil of cloves, carbolic acid and similar agents are anodynes or irritants depends largely, then, on where and how they are used.

In discussing the treatment of pericementitis I shall not enter deeply into the pathology of this condition. It is necessary for us to remember, however, that this membrane is very vascular and well supplied with nerves, and that it is enclosed within bony walls. Therefore, when inflammation exists in this tissue the membrane becomes thickened, forcing the tooth from its socket. This elongation of the affected tooth is one of the chief symptoms of true pericementitis, and always aids in making a correct diagnosis.

The first step in the treatment of peridental inflammation is to ascertain the cause and remove or correct it, if at all possible. Any remedy can be used that will give immediate relief. This is what the patient most desires, and, too often it appears, it is that which the dentist fails to give. In our text-books on dental medicine, both local and general remedies are recommended. The latter are valuable in those cases where the patient is nervous and has lost considerable sleep; but for immediate relief, we must depend largely upon the local application of drugs and remedies. In those cases following the use of arsenic or cocaine for the removal of the pulp tissue, and where the canals have not been filled, the pain can be relieved almost instantly by the following method: Adjust the rubber dam, placing the clamp on the tooth posterior to the one affected. Sterilize the crown and remove the dressing. Dry with alcohol. Now wrap cotton loosely around a smooth, sterile broach, dip in oil of cloves and carefully work into the canal or canals. Remove the broach leaving the cotton. With a chip blower or a root canal drier, apply heat until the cotton becomes dry. Repeat this process several times. By this means we get the benefit of the heat, but, better than this, the eugenol—the constituent of cloves—is driven through the tooth structure, producing a profound anodyne effect upon the sensitive membrane. I have succeeded in giving immediate relief by this method when all others have failed.

Grinding the tooth, where it can be done without injury, is advisable, a counter-irritant can be applied to the gum, and the patient dismissed until the following day. It is scarcely necessary to instruct the patient to favor the tooth.

There seems to be a great deal of pericementitis produced by filling root canals. In performing this operation we should be absolutely certain that the canal is *aseptic.* If there be any doubt, the filling of the root should be deferred. In a previous article I called attention to the care to be taken in filling all large canals that the filling material may not be forced through the apex of the root, especially should we be careful in filling the canals of teeth after having treated a fistulous or blind abscess. In these cases we must not expect the patient to flinch in filling the root; for there is no live tissue at the immediate end. The apex has been enlarged and it is very easy to force the filling material through into the space where the tissue has been destroyed. When granulation fills this space and the newly formed tissue comes in contact with the foreign material, the result will be a "lame tooth," which means peridental trouble.

In filling root canals many dentists—myself among the number—moisten the canals with eucalyptol before introducing chloropercha and the gutta percha cone. Care must be taken here to use *eucalyptol* and not oil of eucalyptus, unless it be the refined oil. The eucalyptus tree produces a volatile oil which consists of three oils, which distil over at different temperatures; the first product is eucalyptol—hence the most volatile constituents of oil of eucalyptus and the one which is the solvent for gutta percha. While eucalyptol is a slight irritant, it is not nearly so irritating as oil of eucalyptus. I have been modifying the irritating property of eucalyptol and increasing its antiseptic value by adding menthol and thymol in the following proportion:

℞	Menthol	gr. iij
	Thymol	gr. ij
	Eucalyptol	f ʒ j

M. Sig.—As directed.

This mixture is equally as good a solvent for gutta percha as is eucalyptol alone.

In those cases following the filling of the root, having every reason for believing that the canals were aseptic, one of the last things

I would do in treating the case would be to attempt to remove the root filling. Usually this only aggravates the case. These cases can best be treated by counter-irritation and general remedies. By counter-irritation is meant the application of an irritant to some part of the body for the purpose of influencing favorably some other part which is diseased. This irritant is usually applied to the gum over the affected tooth. Capsicum plasters, black mustard papers, cartharidal collodion, all of which are official, are valuable, or the following mixtures, which are universally used, give much relief:

℞	Tincturæ aconiti	f ℥ j
	Menthol	gr. xx
	Chloroformi	f ʒ j

M. Sig.—Apply freely to the gum about the affected tooth for several minutes.

℞ Extr. aconiti fl.
Extr. belladonnæ fl.
Extr. opii liquidi aa f ʒ j.

M. Sig.—Apply to the gum as above.

℞ Tincturæ aconiti.
Tincturæ iodi.
Chloroformi aa f ʒ j.

M. Sig.—Apply as above.

As a remedy to be applied by the patient at home, a split raisin. soaked in hot water, and on which is dusted red pepper, can be held on the gum over the affected tooth. A very efficient remedy is to direct water with some force on the part. Beginning with warm water, increase the heat gradually until it is nearly boiling. This must be kept up until we get the full benefit of the heat and resolution promoted.

Another very good remedy to have the patient employ is the hot foot bath. The value of this remedy, like the application of hot water to the gums, depends largely upon the manner in which it is done. A deep foot bath tub should be used and the temperature of the water gradually increased until it is as hot as can be borne. This should be continued from twenty to thirty minutes.

In the next article on "Septic Pericementitis and Incipient Abscess," I will discuss the internal drugs which can be administered, if deemed advisable, in ordinary pericementitis.

In closing I desire to disclaim any originality in the methods presented in this series of articles on the treatment of the various pathological conditions of the oral region. Some may be original, many are not. I am pleased to know that in my hands they have produced gratifying results, and only trust that they may prove helpful to my many readers.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held February 2, 1904, with the president, Dr. Don M. Gallie, in the chair.

Dr. Harold N. Moyer read a paper on "The Trophic Disturbances of the Fifth Pair of Nerves."

DISCUSSION.

DR. HUGH T. PATRICK:

MR. PRESIDENT—The castor oil treatment of facial neuralgia has received very faithful trial at my hands. I believe that it is not eliminative treatment, strictly speaking. Dr. Moyer said that other purgative treatment would be just as efficacious, but he did not tell us whether or not he has tried such treatment. I have, and find that it does not work as well as the castor oil. Many of my patients had tried purgation before they came to me. One of the ordinary family remedies for a pain in the back or about the head is a good purgative, but it does not relieve trifacial neuralgia. My experience has been that the more castor oil one can give, without purgative effect, the better the result. The ordinary result of castor oil treatment on the individual is something like this: In the first place the time to give castor oil is at bedtime, not in the morning, because a large dose given at bedtime will act much less purgatively than if given in the morning, when the patient moves about. The patient, then, is given a large dose of the oil at bedtime. It has a purgative effect. The next night he takes the same dose, which does not purge him quite so much. About the third or fourth day he takes an equal dose in the morning and the same dose in the evening. These do not purge him any more than did the original single dose given at bedtime, and that is about the time he begins to get the good effect of the castor oil treatment. In other words, when a patient takes a tablespoonful or two tablespoonfuls at bedtime and on rising, or when he takes two to four ounces in the twenty-four hours without excessive purgation, he gets the good effects of the castor oil treatment. I must say, though, I have not found two-thirds of the cases up to date materially relieved. The first four or five cases in which I used it showed remarkable, not to say miraculous, results, but somehow or other the other patients did not fit the treatment so well.

As to what my conception of trifacial neuralgia is, I must plead guilty to not having a definite idea regarding it. I do not know what trifacial neuralgia is. I have tried to investigate the literature; I have talked with other doctors, but I do not know what it is. The careful investigations of Spiller of removal of the Gasserian ganglion by Keen, of Philadelphia, tend to show that there is a change in the ganglion itself, a change in the cells and stroma. However, these investigations have not been well supported by other observers, and I do not know whether Spiller is right or not. The theory that there is a cell toxemia which acts upon the fifth nerve does not appeal to me; it is not in accord with the effect of toxemia on sensitive structures. A man with toxemia, an acute headache, has pain on both sides of the head. The toxic substance circulates in one as well as in the other side of the body. If a man gets drunk he does not get drunk on one side of the body. If a man is poisoned with lead, or bisulphide of carbon, or arsenic, he is not poisoned unilaterally. He has not hemiplegia, but he is paralyzed on both sides. If he has pain he has it on both sides. Why should one fifth nerve respond to toxemia and not the other fifth nerve? The ordinary trifacial neuralgia is unilateral. Occasionally the pain is bilateral. It attacks, first, one nerve, then the other, at different times. If there is a toxemia, and that toxemia does play an active role in the genesis of trifacial neuralgia, we must presuppose something preëxisting in the nerve which makes that particular nerve susceptible to that particular poisoning. In short, there must be something back of the toxemia.

My conception of the nature of trifacial neuralgia is exceedingly vague and unsatisfactory to me, but I have very definite ideas as to the clinical features of true trifacial or facial neuralgia. The cases are not very numerous. Any man who sees, for instance, twelve or fifteen cases in a year does not understand by trifacial neuralgia what I mean by the term. In a given case the pain affects always the same place, and is limited to one or more of the branches of the trifacial nerve. The pain is severe. It is atrocious. It is perfectly awful. It is never constant; it is paroxysmal; it comes in spells, and between the spells the patient is reasonably comfortable. There may be some aching in the nerve, but the real pain of trifacial neuralgia is paroxysmal; it is short-lived and recurrent. Again, a very slight peripheral irritation starts the pain. That is exceedingly characteristic. For instance, a man with a trifacial neuralgia of the middle branch will unconsciously touch his moustache, and instantly the pain appears and he suffers intensely for five, ten or possibly thirty seconds, not very often as long as a minute, and the pain disappears. He starts to take his breakfast, swallows his coffee or bites his bread, and the first thing he knows he has this terrible pain again. Furthermore, a repetition of this slight peripheral irritation may not start the pain, though sometimes it will. The patient can never tell when touching his moustache, wiping his nose or taking a bite out of an apple will start the pain and when it will not. He may be afraid to take another bite because of pain. However, he may take bite after bite before he has pain. On the same basis the tapping of a tooth in the region of the inferior or middle branch will often start the pain. You may strike a tooth off and on, and it may not cause pain for five or more minutes. After awhile, lightly touching the tooth may start it. That is characteristic of trifacial neuralgia as I know it.

The chief reason why I consented to come here tonight was in the hope that I might receive some light from your side (the dental) of this case. Of course, I do not know how many cases of trifacial neuralgia can be relieved by drawing or treating a tooth or teeth. I never saw one. I have seen many cases in which three or four or five teeth have been extracted with a view to relieve a trifacial neuralgia. In a recent one twenty-two teeth had been extracted to relieve the trifacial neuralgia without avail. I have never seen a case of true trifacial neuralgia that was really relieved by extracting one or two or any number of teeth. I do not say that drawing teeth will not sometimes cut short an attack. It will occasionally, but generally it does not. A few years ago an operation was introduced in France with great enthusiasm, and taken up actively by some surgeons, which consisted in chipping away, here and there, some particularly tender part of the alveolar process which caused the pain and which was supposed to be the starting point of irritation, like the tenderness of a septal spur in cases of hay fever. Part of the alveolar process was chiseled away and the patient was relieved of trifacial neuralgia for awhile; but that operation has fallen into *innocuous desuetude,* because the happy result was too short-lived.

There are a lot of pseudo-neuralgias, or pains about the face, not true trifacial neuralgia, but neuralgic pains, and in the starting of these pains the teeth are very important, just as is sinus disease. A few days ago a young man came to my office with headache. He said: "I have pain over my eye; it hurts; I have had it for weeks and it does not go away." I said to him, "Is it worse in the afternoon?" "Yes." "Is it tender?" "Yes." I took him to a nose man, who opened up his ethmoid sinus and the upper part of his nose, with immediate relief. That was a referred neuralgic pain, not true neuralgia.

Another case, a woman, came to the office to be relieved of a neuralgic pain over one of the eyes. Two of the best oculists in this city had worked on her for two or three weeks for neuralgic headache without relief. Her ethmoid cells needed opening up in order to bring about relief.

There are such cases as this and similar ones in bad teeth, particularly if the branches of the nerve that go to the teeth are involved. Caries or any disease of the teeth will set up these pains, aches, distresses about the head. The investigations of Head, of London, have shown that beautifully. He definitely outlines the different painful areas for different teeth. For instance, the area, when a third molar is at fault, is entirely different from the area when one feels pain caused by an incisor or cuspid tooth. The cuspid tooth, for instance, gives an area of tenderness over the ear, sometimes above the eye. Head's investigations show that disease of mucous or serous membranes does not cause referred pain, but disease of the liver, of the stomach, pancreas, the appendix (not the serous coat of the appendix), the heart, the lungs, etc., does cause these pains to be referred to some area superficially, and in this respect the tooth acts as an internal organ.

These neuralgiform affections about the head or teeth are frequent. In my experience, true trifacial neuralgia is entirely and absolutely distinct from disease of the teeth. I do not say disease of the teeth has never caused it. I suppose it does sometimes, but I have never seen such a case. Pains in the ear, distress in the eyes, pains in the neck, about the throat from diseased teeth, are covered by these same referred pain areas, and the investigations of Head practically cover all of them. From the third molar area there is often a referred pain down along the sterno-cleido-mastoid muscle, and I suppose all of us have seen a sort of trismus that comes from pain during the process of eruption of the third molars. The patient can not open his mouth; he has spasm of the jaws. It is very like the trismus of lockjaw. Head says that paracentesis of the drum membrane has been performed on the supposition that there was pus in the middle ear, when, as a matter of fact, the trouble was due to a molar tooth, the patient being immediately relieved by the extraction of the tooth. Investigation shows that in most cases touching a tooth cavity with a probe or scratching it causes pain, not only in the tooth, but in the area of referred pain.

Dr. Moyer has done admirably well in encouraging dentists to make more accurate and definite investigations. We neurologists, as well as other physicians, see very little of the troubles that come from diseased and defective teeth. There were days when patients with toothache consulted the physician more frequently than the dentist, or quite as much, but nowadays, thanks to the advance of the dental profession and to your proficiency and skill, they consult you when there is anything the matter with the mouth; consequently these means of investigation are taken away from the medical profession, and there is surely as much talent, and I think a good deal more of practical competence, in the dental profession than there is in the medical profession, and if the men who are thoroughly interested in this matter will undertake a careful investigation of the collateral affections due to diseases of the teeth I feel sure they will make the most valuable contributions to our knowledge of the border line between dentistry and medicine, which will not only be of great value to a suffering public and suffering doctors, but redound to the great credit of the dental profession.

Dr. Truman W. Brophy:

I hesitate somewhat to take up this line of discussion, to follow my distinguished friends in the medical profession. It seems to me only a few days since I used to sit as a junior in the lecture room of Rush Medical College to look down upon the senior who has just delivered the address of the evening, with the feeling that some time I might possibly occupy that place as a senior student. Now we find he has arisen to a high place in the medical profession as an author, lecturer and editor.

With reference to the remarks of Dr. Patrick in the description of the causes of true neuralgia, he will find, if he reads the writings of Joseph Edmund Anstie, of England, one of the best expositions of the subject and of the methods of treatment of what he terms true neuralgia. It was Dr. Anstie who took the position that neuralgia was a disease *per se;* that it was a demand on part of the nerves for a higher degree of circulation; in other words, it was a prayer for healthy blood; and Anstie stood almost alone in the promulgation of this doctrine. and perhaps he does now, even with our more enlightened and advanced ideas upon the subject of diseases of the nervous system. It is the general opinion (and this opinion has been expressed by the speakers of the evening) that neuralgia in a very large per cent of cases (I think Dr. Moyer said about 85 per cent of cases) is the result of local irritation somewhere; and the question that the medical diagnostician must settle is as to where the local irritation may be found. Both speakers have stated in substance that in a large majority of cases of trifacial neuralgia the pain is due to some local disturbance. We know that those who have been suffering from specific disease have neuralgic pains, but they are not always located in one branch or one division of the nerves; they may be located on one side, then on the other. They may be distributed under pressure, or the irritation of the nerves may be reflected.

What have we, as practitioners of dentistry, to do with neuralgia of the face, or of the second and third divisions of the fifth nerve? Very much. I am prepared to say (and I do not think anyone will deny it) that 75 to 80 per cent, and perhaps a greater per cent than that, to be conservative, of all cases of neuralgia of the second and third divisions of the fifth nerve are due to dental lesions as the starting point. The disturbances may not be limited to these parts, but they may be carried to others, and then to the nerve centers themselves. Dr. Moyer spoke of a patient who had an abscess and the removal of the tooth relieved the patient's pains. This is not so common a cause of disturbance of the second or third divisions of the fifth nerve as other lesions. The subject that we have to consider bears upon dental pathology. In order to comprehend fully neuralgia of the nerves under consideration, we need to understand in detail the many phases of dental pathology. First, the disturbances of the surface of the teeth—sensitive dentine. Dr. Patrick said he has never seen any case that he could attribute to lesions of the teeth. There are cases in which there has been recesssion of the gum, and the cement of the tooth has been in a measure wasted by erosion or caries, and just upon the surface of the dentine we have a condition of things which not infrequently is the cause of extreme nerve pain. It is not easy always to recognize it, especially on the proximal surface of the teeth. We can not always see it, and yet a toothpick, anything that comes in contact with it that will cause irritation of such a surface, will produce paroxysms of pain, such as Dr. Patrick described so accurately, and the patient will wince from the slightest provocation. For instance, touching the end of the beard would bring on paroxysms of pain. We have lesions of the teeth which involve the pulp, causing pulpitis, and there are thousands of people who suffer extreme pain in the second and third divisions of the fifth nerve as the result of pulpitis, which may not be easily recognized; and decomposition of the pulp and subsequent irritation of the pericementum will cause pericementitis, and later osteitis may occur. The chief cause is a disturbance of the living tissues of the teeth, which may be the dentine and pulp, and these are common causes of neuralgia.

The X-ray has been to us a most valuable auxiliary with which we may discover, in cases of trigeminal neuralgia, the presence of pulp excrescences within the tooth chamber, making pressure upon the minute nerve fibers that enter into the composition of the tooth pulp. These excrescences may be the cause of neuralgic pains which continue for many years without their cause being recognized, but now the X-ray reveals these excrescences or nodules, and we are able to proceed and treat the condition, not by the removal of the teeth, but by the proper treatment of them, so that they may be preserved. In cases of osteomyelitis we would not remove a limb to relieve the patient of his disease, but we would proceed to relieve him by draining the medullary abscess and putting the part into as nearly normal condition as possible. I hold that it is unnecessary in any conditions that we meet, in the treatment of these neuralgic pains, to extract a tooth or teeth, except in the case of excementosis, and not always under such circumstances.

Among the causes of trifacial neuralgia I will mention sensitive dentine, pulpitis, the presence of pulp nodules, excementosis, pressure of artificial dentures upon the terminal branches of the third division of the fifth nerve, traumatic influences through injuries that may occur, and the setting up of irritations which lead to the development of neuroma at the foramina, through which the nerves make their exit to be distributed to the face. Malposed teeth are common disturbances of the nerves. One of the most common causes of facial neuralgia is a partially devitalized anæmic pulp. Supernumerary teeth carried in contact with the trunks of the nerves, making pressure upon them, are absolutely invisible to the naked eye, but discovered by the use of the X-ray. These conditions are commonly associated with neuralgic pains, so far as I have been able to understand and observe. With our present knowledge of dental pathology and therapeutic agents employed in the treatment of disease, together with dental surgery, we are able to control almost all of those conditions. But when in the case of a molar tooth we find an excrescence, an excementosis developed, we may not or can not remove the growth without sacrificing the tooth, though in many instances the apex of a tooth root may be cut away and the irritant removed from the surrounding parts which furnish or cause the nerve disturbance, the tooth preserved and the patient cured in that way.

Speaking of operative procedures for the relief of trifacial or trigeminal neuralgia, the first operation, if I am correct, for the removal of the Gasserian ganglion was performed by Rose and the second by the late Dr. Edmund Andrews. In a descriptive article of the surgical measures for removal of the terminal branches of the second and third divisions of the fifth nerve, which I prepared some years ago, and which came to the attention of Professor Andrews, he wrote me asking something about the nerve supply of the teeth. I stated at that time that the teeth were not supplied by direct offshoots from the trunks of the nerves, as described in works on anatomy and exhibited in French anatomical preparations, showing little white, wax-covered wires, extending from the trunks to each of the roots, but the nerve supply was more in the form of a plexus of the pericementum around the roots and the nerve filaments, from which extend into the teeth and form part of the tooth pulp, and it was from those filaments the teeth received their nerve supply instead of from distinct branches, as shown in works on anatomy. This may be easily demonstrated by the removal of the bone tissue surrounding the necks of the teeth. If we keep the membrane of the tooth intact after we have removed any considerable portion of the tissue about the end of the root we will find the tooth pulp still alive, always, so that shows these branches do not go directly from the trunk into each tooth root, as the books and anatomical preparations have so generally shown us. If we are able to treat the teeth, not remove them, but treat them so as to put them in a healthy condition, relieve the irritation about the teeth, provided the teeth are responsible for the neuralgic pains, the pains will disappear and the patient will be cured.

As to Dr. Andrews' reference to the methods of procedure for removing the branches of the nerve, he wrote to me that while he was the second surgeon to remove the Gasserian ganglion, as he grew older and saw the results of his work and those of the work of others he made up his mind some years ago that he would not do it any more; that it was not necessary; that patients could be relieved without the removal of the ganglion more safely, though perhaps not permanently, and he did not believe the procedure was necessary, nor do most of his confrères who had formerly performed the operation. Dr. Andrews held that if we remove the second and third branches of the fifth nerve, or the first, the patient, as has been stated by Dr. Patrick, will be relieved of pain for a considerable time, say for a few months, or possibly one or two years or longer.

In the presence of some of the gentlemen who are here tonight, at a meeting of the Illinois State Dental Society, held at Springfield three or five years ago, I removed the third division of the fifth nerve for a man seventy-five years of age, and he has not had any pain since. It has been a permanent cure up to now. This man had suffered fifty years. By removing these branches we thoroughly eradicate pain, provided the source of irritation is along the tract of the nerve we remove. If the pain is farther back and involves the ganglion itself, the removal of the trigeminal branches will not relieve the pain. Dr. Andrews believed that we should remove the branches of the nerve, and then, in the event of pain recurring within one or two or possibly three years, make the same operation again. Why? In order to remove the cicatricial tissue which had formed, and with the removal of this, which may be attached to each end of the divided nerve, which makes traction upon it and tension, you will again relieve the patient. I have done this. A year or two ago I removed the second division of the fifth nerve for a patient in Columbus, Ohio, at the meeting of the Ohio State Dental Society, and this winter he came to Chicago and I proceeded in the same way. I did not find any nerve, but simply removed the cicatricial tissue following the first operation, and the patient has had relief now for three months without recurrence of the pain. I shall continue to do this. Professor Andrews held, and I believe his view has been corroborated by men of large experience, that in the removal of this mass of cicatricial tissue, in the treatment of neuralgia, each time one had less tissue to remove, and after doing this operation two or three times the neuralgic pain would disappear, and the period between the time of the second operation and the recurrence of pain would be greater. For instance, a patient operated on now might come back next fall to be operated on again. The pain might not recur for eighteen months or two years; then, again, it might recur at the end of three or four years, but after awhile the pain would disappear entirely.

I do not wish to take up the time of the society, except in a general way, to speak of the value of the suggestions made by the gentlemen who have spoken regarding the desirability of broadening our views as dentists on the general subject of pathology. I believe we should become thoroughly acquainted with all these branches of pathology that have to do with the fifth nerve; if we do that we will have accomplished a great deal. It is unfortunate that medical colleges do not teach dental pathology and oral hygiene in a way that their importance demands, and if all our schools of dentistry should broaden the course of study so as to make it necessary for each and every student to study the broader field of general pathology, to familiarize themselves with all those phases of disease with which they have to deal during their lifework, a great step in advance will have been made. The schools of medicine should take up and teach students the minute anatomy, physiology, histology and pathology of the teeth, and if asked what is good for toothache, in the language of old Uncle Allen, we may answer by saying, "It depends on what is the matter." There are many diseases of the teeth, just as there are of the head, of the stomach, or any of the important organs of the body, but it is not possible for us to become familiar with all of these different conditions. For a long time I have held, and in my individual capacity taught, that students of medicine should understand dental diseases, so that when patients come to them with trigeminal neuralgia or any diseases of the face, such as antral abscess and many other abnormalities that have their origin in dental lesions, they may, by possessing a knowledge of dental pathology, save their patients from long periods of physical distress.

DR. THOMAS L. GILMER:

Mr. President—As I did not have an opportunity to know exactly the subject-matter to be presented tonight, therefore am illy prepared and consequently shall not be able to discuss it as I should like.

I certainly appreciate very much the fact that Dr. Moyer and Dr. Patrick were willing to come here this evening and present this subject in such an admirable manner. Their discussions have been beneficial to us, and we are deeply indebted to them.

I am always pleased to have a new theory presented on vexed questions, and Dr. Moyer's theory, as I understand it, is new, in that he believes neuralgia of the fifth nerve is caused by an excess of blood to the nerve itself, through trophic disturbances. It is diametrically opposite, though similar, to the theory advocated by Anstie, who believed ischemia to be the cause of the pain, while Dr. Moyer believes hyperæmia to be the cause. The subject under discussion, if I understand it correctly, is not one of the ordinary kind, but a peculiar kind of neuralgia, known usually as tic douloureux. There is a vast difference, as Dr. Patrick has said, between tic douloureux and the other forms of nerve pain which may not be true tic. I would ask Dr. Moyer, in closing the discussion, to tell us if he has ever seen a case of tic in which there was a well-defined herpes? If I understood Dr. Moyer correctly, he said tic may be a neuritis or a neuralgia. In case of tic do we ever have, as the result of it, herpes? While I have seen many cases of tic, I have never seen herpes accompanying it. I believe we often see herpes as a result of a neuritis, but never in a case of tic douloureux.

As to the referred pain, which was spoken of by Dr. Moyer, I think the mistake is sometimes made in attributing reflexes to abscessed teeth. I doubt if it is ever true that we have as the result of an abscessed tooth a well-defined reflex condition. We do often have reflexes which cause pain and other conditions of the ear during the process of eruption of the deciduous teeth. It is also not uncommon to have a patient refer pain to the ear as the result of a pulpitis. On the other hand, we do have affections or disturbances of the eyes as the result of dead pulps. In case of infection of the roots of the teeth pathogenic organisms may be carried by the circulation, or they may follow up the nerves to the eye, and as a result the eye tissues become involved. I have frequently seen such cases. We may also have diseases of the eye as the result of reflexes, the trouble originating in the teeth, but the point I wished to make is that teeth with dead pulps never cause disease or pain in other parts by reflex action.

As to the castor oil treatment, I have had a limited experience in its use, and will cite two cases that recently came under my observation. One patient lived in Iowa. I had seen her some months before, and put her on the Dana treatment, by massive doses of strychnine. Temporarily with good results, but the strychnine after a few months lost its effect and the patient's husband wrote me that he thought an operation would be necessary.

It was not convenient just at that time for me to do an operation for her, so I put her on castor oil, with the result that the pain soon ceased entirely, and the patient has been free from pain for three months.

The other patient had undergone four operations, and in the fourth the ganglion operation was done. She had a period of relief from pain of from one to two years between the periods of the peripheral operations, and the central operation gave immunity from pain for a period of six years. I put her on the castor oil treatment until I could think of what was best to be done next. The pain ceased in a few days, and she is still free from it, but the time has been too short, only a few weeks, to cause me to believe it will be permanent.

I do not know how the castor oil relieves the pain. We use it empirically, but certainly it has had a very marked beneficial effect in many cases. It seems to me that since its action goes on affording relief far beyond the time when there is no purging, there must be something else other than its eliminating action to account for its beneficial results.

Dr. Murphy at the present time is promulgating a method of treatment which, I believe, comes from a German surgeon. He injects a one and one-half per cent solution of osmic acid into the nerve trunk, and is rather enthusiastic over the results he has obtained by its use. Whether the cure is brought about through a portion of the nerve having been destroyed by the acid, similar to what is done by resection, is a question. Dr. Murphy believes that the acid has some other effect on the nerve beyond the necrosed portion itself and is hopeful of better results from it than by the older methods of treatment.

Dr. D'Orsay Hecht:

Mr. President—It seems at first thought preposterous for a medical man, particularly a neurologist, to come before a dental society with a view to teach or say anything concerning neuralgia borne of a dental condition. Time was when it was granted the general practitioner of medicine to treat all kinds of neuralgias, but discuss none of them. With the advent of specialism this regime has changed; now it is regarded as beneficial and profitable to indulge in reciprocal "heart to heart talks" from which may be gleaned the very gist of the topic under discussion; and by that token, I have been a most appreciative listener tonight.

One object in taking the floor is to say something anent the remark of Dr. Gilmer as to the occurrence of herpes in cases of neuralgia of some one of the branches of the fifth nerve. I have seen a citation in a well known German dental text-book (Brand's Zahnheilkunde) in which the author alludes to the not uncommon appearance of an herpetic eruption developing in the course of a facial neuralgia induced by dental trouble.

Referring to my program, I notice that the subject for discussion this evening relates to the trophic disturbances of the fifth pair of cranial nerves and the all-absorbing topic seems to have been the *pain,* the consideration of "tic douloureux." I believe other trophic disturbances, although minor in importance, are deserving of some attention, namely, the *herpes,* already referred to, and *Canities* (grayness or whiteness of the hair), which, according to one observer (Jacquet), appears suddenly or gradually and in patches, consequent upon the presence of diseased teeth. In fact, this French authority already alluded to by Dr. Moyer in the earlier part of his remarks as having associated remote sensory disturbances with diseased teeth is further credited in dental literature with the enthusiastic view that the eruption of a third molar many times produces in adolescents (14-19 years old) circumscribed baldness (alœpecia areata). He states that one-half of the early alœpecias of this order result from the eruption of third molars. This is no doubt an extravagant view and novel as well.

The Gasserian ganglion has arrogated unto itself a degree of first importance in all discussions of "tic douloureux," and rightly so. The ganglion may be called the storm center of this painful affliction. One other trophic disturbance is thought to emanate from the Gasserian ganglion; I speak of facial hemiatrophy, that is, muscular shrinking, flattening (atrophy) in the area of the distribution of the fifth nerve. Statements, however, have been forthcoming based upon both clinical deductions and experimental work, that this large ganglion plays no role in the development of such atrophy of the facial muscles; that in cases where there could be demonstrated total destruction of the ganglion there had been no wasting whatever. Investigators along this line infer that many of the trophic disturbances are of vasomotor origin. This reminds one of other points explicitly brought out in Dr. Moyer's paper, namely, that otalgia (earache), tinnitus aurim (ringing in the ears) and other aural phenomena result only indirectly from disease of the fifth nerve, ensuing by a circuitous route—the vasomotor one.

Dench, of New York, upon invitation discussed before the New York Dental Society the question of ear diseases and complaints with relation to dental causes and, I believe, in his paper, which appeared in *The Dental Cosmos* some years ago, he referred to ear symptoms as being reflex from an aggravated or diseased condition of teeth—due to vaso-motor interference and not to any trophic relation of the branches of the fifth nerve with the ear.

DR. FLORENCE ATKINSON:

I was the victim of neuralgia for some ten years, and after having had both upper third molars removed I would like to give my experience and tell the result. I presume it was a trifacial neuralgia. I suffered the tortures of the damned, I might say, for ten years, and perhaps more. I had consulted all the leading specialists that were recommended or I had heard of for relief, and I finally reached the point (it was my senior year in college) when something had to be done, as I could not continue my studies. I visited our family physician; I had a consultation with him, and he sent me to Dr. Montgomery, who thought the neuralgia was due to the condition of my eyes. I spent almost an entire day in having my eyes tested and glasses prescribed, and still I experienced very little or no relief. Then my physician determined upon an operation on a certain organ of the body, and so I went to the Presbyterian Hospital, submitted to an operation, which had no effect whatever on my neuralgia.

I will say that at the first lecture given by Dr. Ottofy on the third molars I decided then and there that these teeth were the cause of my neuralgia. But the dentists whom I consulted said my teeth were perfect; that there was nothing the matter with them; that there was nothing to cause the neuralgia. After all of these operations, and spending a considerable amount of money, as you realize, in ten years, the last year the neuralgia became so severe that I could hardly endure it. The pain, apparently, was located in the supraorbital branch of the nerve and radiated to the base of the brain. In the last severe attack I had before going to the Presbyterian Hospital the pain began at the base of the brain at night, or about 2 o'clock in the morning, when I awoke with severe pain, had to sit up in bed and finally got up and walked the floor. This became a common occurrence. It was necessary to send for a physician to give me a hypodermic of morphine. After this I went to the Presbyterian Hospital and awaited the result of the operation that was performed on me. The neuralgia was just as severe after the operation as before it. It came on in paroxysms after I began to practice dentistry, which were so severe that I was compelled to lock my office door two or three days in the week. Something had to be done. I went to a classmate of mine, and said to him I believed I had a third molar on the right side of the upper jaw. He took an excavator, examined that region and said he did not think there was any such thing. Later it was determined that there was the point of a tooth there, but that there was no room for it to come through. I said, "If there is one there, there is one on the other side." I made arrangements with our family physician to come to my office the following week to administer the anesthetic, and I arranged with my classmate, Dr. E. B. Jacobs, to extract these teeth. The teeth were accordingly extracted, and since then I have been entirely relieved. I have had no recurrence whatever. When tired, sometimes I have symptoms of neuralgic headache, but this headache does not interfere with any work or pleasure I may want to indulge in.

I feel that my case is too perfect a one not to relate to you on an occasion of this kind.

Dr. Moyer (closing the discussion):

With reference to the remarks of Dr. Patrick, I wish to say that I have suffered from neuralgia of the right shoulder myself. It usually comes on when I am out hunting and get wet feet. Is it possible that I only catch cold on one side? I usually get both feet wet, and the neuralgia occurs in the right shoulder. Take, for instance, the infections. Syphilitis is a blood disease. How many cases do we see of bilateral ptosis or paresis of the third nerve, or bilateral involvement of the third nerve? Diplopia is usually unilateral. Take intercostal neuralgia, due to malaria, rheumatism and what not. Did you ever see it on both sides? Herpes zoster, undoubtedly due to infection, is rarely, if ever, bilateral. What becomes of the theory of a toxema that will locate itself always on both sides of the body? Migraine, eight times out of ten, occurs on one side of the head.

The title of my paper was trophic disturbances, including pain involving the fifth pair of nerves. I wanted to broaden the discussion as much as I could, and that is the reason I chose that title. In my remarks on trifacial neuralgia I tried to point out the relation of the trophic functions to the pain as being one element in neuralgia. I brought in all of the trophic functions except a few mentioned by Dr. Hecht. I recognize the fact that there is an obstinate tic douloureux, which is much worse than any of the cases that have been mentioned tonight, that absolutely destroys the usefulness of the individual. But to erect this severe form into a separate class, and to accord it alone the term facial neuralgia is to make an artificial distinction. The cases imperceptibly grade into each other from the mild to the most severe.

Dr. Patrick:

There is one point made by Dr. Brophy that I wish to refer to, namely, that 80 per cent of the neuralgias of the second and third branches of the fifth nerve are due to diseases of the teeth. How shall we reconcile this with the known fact that the most frequent seat of neuralgia is in the first branch, where there are no teeth?

I have recently seen two cases of facial paralysis of the seventh nerve following extraction of teeth, and if any of the members present have had similar experience I would like to know about it.

As to herpes appearing in cases of genuine tic douloureux, I have never seen it. I have just lately seen two cases of herpes of the face from neuritis of the lower branch of the fifth nerve, and although these patients had atrocious pain along the branch of the nerve they were not cases of tic douloureux.

The severe pain which Dr. Atkinson had was not a trifacial neuralgia, because the trifacial nerves do not supply the occipital region; what she called the base of the brain, but what she really had was a generalized severe pain referred from the teeth.

THE MINNESOTA STATE DENTAL ASSOCIATION.

DISCUSSION ON DR. C. N. THOMPSON'S PAPER, "ADHESIVE FILLINGS."

Dr. W. N. Murray:

It was only this morning that Dr. Thompson and I adjourned to a corner of the room in this building and read the paper over. I feel that this opportunity to look it over was not sufficient to give the paper the discussion it deserves. In reading the paper one or two points occurred to me that I wish to speak about. Dr. Thompson spoke of some experiments that had been conducted by himself and Dr. Black with the dynamometer, and as I understand it these experiments were made between the flat surfaces of two pieces of glass with cement between them, and with direct pressure upon them. Now I should hardly agree that the results obtained are applicable to the inlay, for several reasons. There is rarely a case where the inlay is not put in one end first and gently moved to force the cement out, but to put the cement between two flat surfaces of glass and bring the glass together squarely is an entirely different matter; it is a different mechanical process. There was another thought that occurred to me in regard to the particles that cements are composed of, whether the liquid we use renders the whole an impalpable mass in mixing. I am not prepared to state that. Dr. Thompson is perhaps better prepared to enlighten you. The paper also dwelt upon the porcelain inlay in regard to this matter of the amount of cement that is left underneath the inlay in those experiments as conducted by Drs. Thompson and Black. Dr. Thompson, in one of his articles, makes the statement that inlays as they are generally placed in the matrix are very liable to spring up, that the thickness of the cement that must necessarily exist, as shown by the experiment, is a serious matter, and that perfect fitting is not absolutely desirable. I would disagree with the essayist on that point, so far as either porcelain or gold is concerned. I believe the only perfect inlay is the perfect-fitting inlay; even if we have not the cement for perfectly closing the inlay we should strive to get a perfect-fitting inlay, and the cement problem will adjust itself. I believe the proper adjustment of the porcelain or gold inlay is equal in importance to the preparation of the cavity. The paper has been to me a very refreshing one. In fact, it is one of those practical papers that we come to our dental societies to hear, and from which we take home the thoughts which do us good. I wish to compliment the essayist upon the tone and character of his paper. I should like to emphasize the comfort and satisfaction a well-fitting inlay brings to our patients. I know that is a great factor and a great source of satisfaction, both to the dentist and to his patient, and it is an unusual thing for a patient who has an inlay inserted, either gold or porcelain, to make any complaint afterward. With all the advantages enunciated in this essay, as regards comfort, durability and lack of nerve force expended by the patient, I think this paper is a stimulant for us to try and perfect ourselves in this branch of dentistry.

Dr. E. C. French:

Dr. Thompson has the happy faculty of being able to interest one in private conversation as well as on public occasions, and the time spent with him last evening in going over his paper will linger with me as a happy recollection in my future. His paper strikes the keynote, and the note is fully in tune and harmony with the whole theory and keyboard, so to speak, of filling teeth. Dr. Murray spoke of the pressure of cement between two pieces of flat glass. I agree with Dr. Murray. I did not think of it until he mentioned it, but I do not think we get the same result with the inlay as we would with cement between two pieces of flat glass. Inlays are not usually put in in that way. Cements are a puzzle. We do not know what results we are going to get as we use them in fillings. I know we get different results in different patients with the same cement, and we find sometimes that with the same cement one filling remains perfectly intact while another disintegrates in a short time. Is it the cement or is it the operator? Perhaps a little of both. Our first object in filling teeth should be to restore the teeth to as nearly a normal physical condition as possible. I say we serve our patients best when we insert a filling that is to them the most comfortable. I tell you there are many patients all over the country today that have had beautiful gold fillings that have sworn more about those gold fillings than they have about anything else. It is a beautiful thing to look at, but it is awfully uncomfortable. When we place a patient in that condition he is continually uncomfortable, and he is continually reminding the dentist of that fact. We are not doing the right thing by a patient when we restore a tooth with a filling that is not compatible with tooth structure. I believe the more we look into the subject, the more we study the question, the sooner we will find that there is no filling that we can put into the teeth that is as comfortable as an inlay, especially in a live tooth.

Now, as regards cement. I have been thinking since sitting here of how I used to put in my inlays years ago. I began to make them before oxyphosphate came on the market. I used oxychloride of zinc. The older members of this society who have used oxychloride know the action it has on tooth structure, especially a live one. You found the patient would nearly go to the ceiling when you put in the first layer, but when it is once in the tooth no cement can compare with it for the preservation of the teeth. My success with gold inlays was perhaps largely due to that. Oxychloride is very slow setting, but I believe it is probable and possible that you will get an inlay more closely to the walls of the cavity with oxychloride than with the oxyphosphate. It is very fine, and if it were not for the severe pain that it gives in many cases I believe it would perhaps be a better thing to cement our inlays in with than oxyphosphate. I believe with the essayist that a gold inlay or a porcelain inlay put in the tooth does better than a gold filling or amalgam, and the chances are that the inlay will outwear either a gold or amalgam filling. If someone will give us a cement that is fine, that can be reduced to a very thin consistency and still have the capability of setting and becoming hard, I think it would solve a very large problem in inlay work. I would like to ask the essayist whether there is any certain consistency to which he reduced his cement before inserting his inlay? I have been using a cement that sets quick, and use it as thin as it is possible for me to use it and have my inlay stay in, and I believe I get my inlays pretty close to the walls of the cavity. I am glad to know that Dr. Thompson is experimenting along this line, and I would be glad to have him tell us what cement he uses in setting his inlays and his results with it in comparison with other cements that he used heretofore.

Dr. J. M. Walls:

The essayist referred to the protection of the pulp by cement against thermal changes through metal fillings. It pleased me much to hear this point brought up. It is a matter that is not given the consideration it should have. The discussion has taken the turn of inlay work entirely, and I want to carry the idea away somewhat for a minute to the ordinary form of metal fillings.

In preparing cavities in teeth. decay is often found to have penetrated so deep toward the pulp that the ordinary atmospheric temperature causes irritation to that organ. This is especially so of the bicuspids and molars. It seems a very wise procedure in these cases to protect that delicate organ by a layer of cement, which will insulate the pulp to a great degree from the thermal changes conveyed through the metal fillings.

A vast majority of the patients who go out from our offices with large contour fillings in teeth suffer, perhaps, for weeks and often months from the changes caused by the contact of metal with the dentine near the pulp. And in many of these cases the pulp becomes so irritated as to require its removal later on. An intervening layer of cement or any other suitable substance would obviate much of this distress.

Dr. C. N. Thompson (essayist):

I think I could better describe our process of testing cement if I had a blackboard available. Now. of course, we all knew when we began this work that measurements taken between pieces of glass could not altogether be sustained by results. Our measurements have been made as fine as 1-10,000 of an inch, and it would be impossible in almost any other way to arrive at a series of measurements that would prove of any value. We might measure one and make our deductions. but how much could we prove from them? We had to make not only one. but twenty-five of each kind of cement before we arrived at what we considered about the fair thing. If you attempt to make twenty-five fillings of cavities exactly alike you know you could not do it. So we took, at Dr. Black's suggestion, this method to get at what was necessary. The cover glass that we used was smaller than the end of a piece of chalk, just about the size of an ordinary lead pencil. These were put into a dynamometer and measured. First we had to make a plug to go into the dynamometer to extend the cover glass on the end, so as to touch the indicated point of the register or dial. The plug was fixed at a point so we could always have it the same, getting it always in the same position under the micrometer. We found it did not make much difference as to how thin we could get it, whether we used ten or one hundred pounds pressure. We do not know what we shall bring out; we have not had time. We have now to study the results under the microscope to find out what the molecular changes are in the cement.

Now in regard to the questions asked. The cement mixing was a feature of which we made a study, so we mixed some of these cements real thin and some quite heavy. The heavy would not spread well under the glass, but the thin gave us very nice measurements. In regard to the protection of the tooth by using something beneath the metal fillings, I consider them defective, because, after covering them with a layer of cement, you immediately proceed to make undercuts in the sensitive part, where it will do the most damage, and the object of protecting the pulp has been almost entirely defeated. Of course, it would not do to name the cements we used in this work. There were four kinds used, and with one exception, we found them to compare very closely. The average thickness of cement between the glass was 20-10,000 of an inch, slightly below that. I believe 18½- or 19-10,000 was the average. I made one mix of a certain cement which was very quick setting. I mixed it very thin and I set the dynamometer to a pressure of 130 pounds, and we got it down as close as 1-11,000 of an inch, but the next attempt I worked it back to 19-10,000. The ideal cement, of course, would be one that took up no space and would still do as well as the others.

Dr. Murray:

Have you ever tried measurements of any other substance?

Dr. Thompson:

We measured liquid cement and Canada balsam, and one other substance—I believe it was resin—and it comes very much closer than does the cement. In connection with what I said relative to perfectly-fitting fillings being the most incorrect, I want to state that Dr. Murray misunderstood the purport of my remarks. I say there is no possibility of overfitting the fillings. The more accurately they fit, the more secure they are; but when you study the thing you will find that a filling that absolutely fits the cavity is inserted with the cement, and the cement occupies a certain amount of space, so much that it keeps it from going to its seat just to the amount of the thickness of the cement, consequently it is that much raised from its seat, whereas if the filling is perfectly fitted the removal of the matrix only takes away the space the cement occupied, and the filling comes nearer the desired seat than any other. That would not be the case if you could press the cement out. When the cement takes up so much room, fully as much as the matrix, we must admit there is not much argument in the fact that we may by slighting the walls get the filling down, and then by cutting the wall rock the filling down to its place, but with the cement wall it does not hold good.

AMERICAN DENTAL SOCIETY OF EUROPE.

Hamburg, Germany, April, 1904.

DISCUSSION OF PAPER, "FAILURES IN PORCELAIN FILLINGS," BY DR WILLIAM HIRSCHFELD.

In opening the discussion the president thought the subject was one which might be considered with great advantage. With all gold operations practically the results were limited by a man's own ability in the preparation of the cavities and the insertion of the fillings, and the reason why so many ardent adherents of gold had tabooed porcelain was because they imagined they were in the hands of cements for fastening the fillings when produced. Therefore papers such as that just read, which brought forward points which enabled dentists to be more nearly masters of the situation, were means that would probably put porcelain far in advance of the esteem in which gold had been held by operators and the profession generally for the last forty years.

Dr. E. F. Day

Said that with regard to the inlays dropping out something had been already said on the subject that morning. If it was necessary to depend on cement for the retention of an inlay in its position there were a great many things that had to be considered. There was first the area, which Dr. Hirschfeld had talked about, the area of the cavity in regard to the area of the contour, and that was a point on which he agreed in so far as the cement was concerned; but if the filling had been locked in, as had been represented, he did not care what the contour was. Taking into account the various questions spoken of, such as the occlusion not being too hard, he really thought an inlay, properly secured in the cavity, would beat a gold filling every time. With regard to putting on the rubber dam, he might say he never put on rubber dam when putting in an inlay, and he did not think it was necessary. He used a cotton roll placed under the lip, and he had never had any difficulty. If a cavity extended up under the gum, instead of using amalgam, as had been recommended, he thought gutta percha was the best thing that could be used. It was self-retaining and did not want any special preparation, and would certainly save a tooth under the gum better than gold, porcelain or anything else. With regard to the cement, he did not think that fifteen or twenty minutes were required to set the cement of an inlay. He had timed it by the watch from seven to ten minutes. He had been using Harvard cement. The cement, as Dr. Jenkins had explained, was never twice alike. In some cases the cement could be mixed just hard enough to be put in and squeezed out, but if there was a very difficult inlay it required a little manipulation, or if it was a thin inlay the cement had to be thin enough to insert the inlay and squeeze out the excess of cement.

Dr. W. Sachs

Was of an entirely different opinion from Dr. Day with regard to a good porcelain filling beating a good gold filling. He himself had hardly any failures in gold filling for many years. It was possible to tell how long a gold filling or gutta percha or amalgam filling would last, but one could never foresee how long the porcelain filling, however perfectly made, would last. It might drop out next day. It might have been made with all the conscientiousness a man was master of, the cavity perfectly prepared, with fine undercuts and proper cement, and to all appearances it was a filling that would last for many years, but in a very short time it would drop out through no fault of the operator. In fact it was a very unreliable material. Nevertheless, no modern dentist who wished to be considered to have attained the highest point of dental art could do without the porcelain filling. He thought a dentist should only use a porcelain filling in those places where the great advantages of porcelain would make themselves evident, and that was chiefly for esthetic regions in the anterior teeth under favorable circumstances. There was only one way to prevent failures in porcelain fillings, and that was to make no porcelain fillings at all; and he did not think there was any member who had not had failures in his practice, even though he had done his best. Even Dr. Jenkins, the most celebrated of the society's members, who was the most perfect and experienced porcelain worker in the world, was not beyond failures. He himself used porcelain fillings in front teeth where the unsightly appearance of gold would offend the patient, and he used it in teeth where pyorrhea had loosened the teeth a little, and where it was impossible to put a strain of malleting on the tooth itself, and for nervous patients who could not bear the filing and polishing of gold fillings between the proximal surfaces. He could only repeat that if anyone asked him where he should use porcelain fillings he should tell him to use them in cases where there was no doubt as to what should be used. The moment there was any doubt a gold filling should be resorted to, and porcelain fillings should be used only where the conditions were favorable, and where it was desired to utilize the esthetic properties of the material. In that way he had, perhaps, less failures than he had in former times when he used porcelain fillings all over the mouth. Except in the case of teeth loosened by pyorrhea he never used porcelain where the strain of mastication came upon the filling. Probably his opinion was very different from that of the majority of the members. but he held to it very strongly.

Dr. N. S. Jenkins

Said that from what he had had the pleasure of seeing of the practical results which the essayist had attained in his private practice he was astonished that he did not use for the title of his paper, "Success in Porcelain Restoration." It was well for practitioners to turn to the weak side of that method of operating, remembering at the same time that there was no method used in any department of the profession which did not have its imperfections. He believed, contrary to his friend, Dr. Sachs, that there had been as yet no method discovered which was so reliable, which promised such great good, which was of such great advantage both to patient and operator, as the modern methods of making restorations with porcelain. To refer for a moment to some methods which had been alluded to, in cavities which were deep beneath the gum, he might say that he had never found it necessary to make use of any other material than a porcelain filling, however deep the cavity might be. There were methods which the experienced operator could employ, by means of which he could force away the gum from a deep-seated cavity, and always—he had yet to see the case where he had not reason to say always—obtained a perfect impression of that cavity. It was a question of patience and of skill, but in a higher degree patience. Every cavity had to be studied and treated by itself. The repairing of a tooth ravaged by decay was a serious business; it was a painful thing to the patient, no matter how gently the work might be done, and it called for the widest intelligence, for the most delicate manipulation, for the most conscientious carrying out of every step of the process to restore that tooth with any material whatever, so that it should be a perfect advantage to the patient. There was, perhaps, no other material which more imperatively demanded the most serious consideration, the most careful manipulation and the most sincere conscientiousness than the material under consideration. He had every reason to believe that he had never had a failure for which he was not himself responsible. In the beginning there were certain difficulties to overcome before the material could be used adroitly, and there were frequent occasions where, for various reasons, some necessary precaution was momentarily forgotten. He most earnestly believed that if all the conditions were fulfilled it was possible to obtain for patients a far higher and better result with the skillful manipulation of porcelain than with any other material whatever. He did not believe that the coming generation would be more than indifferently familiar with the old practice of filling with gold, because it would always have its place and usefulness, but it could never be so useful or so beneficial in the great majority of cases as porcelain. He asked the members to think what it meant to a delicate and sensitive patient who came with a number of great cavities sensitive to touch and sensitive to changes of temperature. It was possible to take that mouth and restore it by delicate manipulations until not only the inquisitive eye could not detect that anything had ever been done there, but the patient himself would be absolutely unconscious that he had ever had a decayed tooth. Was it possible to do that with gold, amalgam, gutta percha or anything else? It was impossible. Porcelain had the very great advantage that it could be molded into the shape and form of the tooth, so that when the inlay was finally put in position there was no necessity to distress the patient by the operation of finishing edges or exposing him to any other annoyance or inconvenience. It was not for esthetic reasons alone, although those certainly played a great part, but he thought all men, both in Europe and America, who had made extensive use of porcelain in their practice had more and more come to regard the saving qualities of porcelain as its most important advantage. For what happened when a tooth was filled, either with gold or porcelain? In the first case, where the tooth was filled with gold, if it was a vital organ, unless it was an extremely minute cavity the condition was established where that tooth was sensitive to extremes of temperature, and many patients instinctively avoided properly cleaning that tooth. If they finally came to disregard the necessary precautions of cleanliness that tooth was liable to secondary caries in a high degree. But if that tooth had been filled with porcelain the patient could always brush it with cold or hot water without pain or inconvenience and could keep the tooth in a far more cleanly and comfortable condition than was the case with the most highly polished gold filling. Moreover, even so brilliant an operator as his friend Dr. Sachs was very well aware that when an elaborate gold filling was made, however successfully or carefully the work was done, there was always a possibility that somewhere there was a trifling imperfection which might possibly become the rift within the lute; a slight degree of moisture began at an obscure corner of the filling to make its way between the filling and the dentine, micro-organisms entered little by little, discoloration occurred, and by and by the beautiful gold filling had to be renewed again. That accident did not happen with the porcelain filling. In the first place, it was possible to make certain before the filling was placed in position that it was a perfect filling. It should neither rock nor have any space perceptible between the edges of the cavity and the edge of the filling, and when that filling had been placed in position and cemented carefully into place capillary action ceased. There was no longer the danger of penetration of moisture between the filling and the edges of the cavity, and no other method of filling gave that degree of security.

DR. NORTHCROFT

Was very pleased to say a few words, because as a stranger and a visitor he desired to thank the Society for the opportunity of allowing him to be present. He had listened with great pleasure to

Dr. Hirschfeld's paper and it struck him that there were one or two things which were worth referring to. In mentioning the failures which occurred in porcelain fillings, Dr. Hirschfeld had only touched on the failure of the filling coming out. It would appear that the ideal which was being aimed at was an esthetic one as well as a conservative one, and therefore anything which militated against the esthetic idea might be considered a failure. In the first place he had had failures in the staining which occurred round the edges of the porcelain filling, from what cause he never could decide. Sometimes he thought it due to the patients using drugs, and on other occasions he thought it due to the use of colored dentifices, the use of which he always tried to avoid. Not only in inlays he had put in himself, but in the work of other operators, he had seen a line of demarkation between the porcelain and the enamel, a discolored line, which from the esthetic point of view was a failure, and he desired very much to know how to get over that trouble. He regretted that Dr. Jenkins did not answer Dr. Daboll's question put that morning with regard to the cement which should be used to set the inlay. It often occurred that if a cement was taken of a color which apparently matched the tooth the inlay after it was inserted with the cement seemed to be more opaque and to darken, and that was also a failure from the esthetic point of view. Another cause of failure caused by fillings coming out might be sometimes overcome by the insertion of platinum pins. It was a very simple matter where Spence metal was used to form the matrix to first of all drill a little hole in the Spence metal and insert a platinum pin from an old tooth. It formed a most excellent anchorage for the porcelain filling, and in large contours in incisors where the filling had to be built right down to the cutting edge he had found that method very successful. Dr. Jenkins had made one remark which he thought carried the matter a little far. When speaking of the difference between gold fillings and porcelain fillings, it seemed to him that Dr. Jenkins was speaking of the failures in faulty gold fillings as compared with the ideal inlay. He spoke of the gold filling failing from the admission of moisture and the porcelain filling remaining sound. It seemed to him that if the two ideal fillings were taken a perfect gold filling under perfect conditions would probably serve the tooth as well as the porcelain filling, but of course a faulty gold filling compared with an excellent inlay such as Dr. Jenkins would insert, would naturally be in favor of the porcelain inlay every time.

DR. N. S. JENKINS

Was afraid he had not made himself quite clear. What he intended to say was that if a disaster occurred in the neighborhood of a gold filling, no matter how perfectly made, through capillary action, that disaster was widely extended, whereas if secondary caries or any amount of disease occurred in the neighborhood of a porcelain filling such action did not obtain, and therefore the advance of decay was an extremely slow one. With the porcelain inlay when a new cavity came within its neighborhood, or when a piece of the tooth was broken away, it did not, as was the case with gold filling, rapidly decay, the change that occurred being an extremely slow one.

THE PRESIDENT

Presumed that Dr. Jenkins had failed to state the fact that the interior of the cavity had a lining under the porcelain which was not found under a gold filling.

DR. JENKINS

Said it was because the space was completely filled and capillary action did not take place.

DR. SACHS

Said a filling was often made exactly to the shade of the tooth, but on being inserted it was found to be too light or too dark. The question was whether that could be corrected by using a different shade of cement.

DR. N. S. JENKINS

Said that in reply to that and to the question of Dr. Daboll, he did not think the use of different colored cements was usually desirable. It was true that with a very thin inlay the color could be somewhat affected by the color of the cement beneath it, but what should be always borne in view was the necessity of using the least possible quantity of cement. He had come to believe that it was desirable to use a cement practically without coloring matter added to it. He had been recently experimenting with Harvard cement in which the coloring matter had been left out and he found in many particulars it promised to be more useful than the colored cements. Harvard cement was almost white.

Dr. W. A. Spring

Thought that those who used high fusing inlays would find it necessary to be more particular about the color of the cement than those who used a low fusing inlay, because the low fusing inlay was slightly more opaque and the color was not so likely to be affected. Between the centrals and laterals he used as white a filling as he could find, No. 26 of the Consolidated High Heat Porcelain, and by a change in the color of the cement secured the color he required.

Dr. J. W. Gale

Said his experience in attempting to darken a porcelain filling by a darker cement had been always to spoil the tooth and not to help the porcelain. The darker cement would show very badly through the tooth and not at all through the porcelain. He understood the essayist to say that he depended somewhat on the adjoining tooth to hold the filling in, and in that he probably misunderstood him, because he did not think an adjoining tooth ever held a filling in. It protected it, perhaps, from wear and attrition, but that was all. Another point he did not quite understand was the amount of contour. His own way of looking at the question was to look at the masticating power of the person. It had been demonstrated there was an enormous difference—one person would bite 25 pounds and another 250 pounds. One's judgment should tell him how much the contour might be by the look of the mouth.

Dr. Kirk Davenport

Thought the only thing that had not been thoroughly gone into was the element of the patient. There were many cases where the condition of the cavity, the condition of the nerves of the patient, and everything combined, made the preparation of the cavity one of great difficulty, and almost impossible on the lines suggested by Dr. Hirschfeld. The question was whether something else ought to be done. He found, in a good many patients, cavities extending from the labial surface right round, and all the nice rules laid down did not seem to fit at all. In those cases also one found white, weak teeth in which cement fillings did not last well, and in which gold fillings should not be used, and it was necessary to use a filling so thin that it was quite outside Dr. Hirschfeld's paper. Personally, he took the risk, but he wanted to know whether any one else had anything to suggest.

THE PRESIDENT

Said in connection with this subject there were probably one or two other points which might be gone into. For instance, there was erosion of the cavities, where an inlay did not wear down, but there was a certain amount of diminution of the tooth substance around the inlay. As time went on the gold filling was observed to stand up and from time to time it was necessary to polish it down, and that was observed also on the grinding surfaces of teeth. In connection with inlays, if an allowance was going to be made anywhere it was better to have an inlay below the edges of a cavity than above. Very few men had any desire to polish down an inlay whether of high or low fusing. If the inlay was made a little below and nature in the course of time wore down the edges of the cavity slightly the inlay was practically flush with the tooth. A porcelain inlay was more or less faulty if the object aimed at was not attained. In many cases the inlay was a perfect match in color, but when the cement was put under it it was no match at all. He found that could be largely overcome by simply using a very dark menstrum of porcelain to begin with and then put the shade required on the top. In that way it would be found that the cement would have little to do with the shade of the inlay after it was set, because the reflection of the cement underneath was done away with. Around some of the inlays there was a certain amount of line seen in the course of time, and he believed a great many of those cases were of the kind Dr. Davenport had referred to; not cases where the dentist did what he liked, but where he did what he could. There would be a certain amount of discoloration round an inlay like that, much the same as the discoloration of gold fillings which turned black in some patients' mouths. There was no reason why there should not be an influence at work to discolor the cement as the gold was discolored. Because gold fillings had been discolored there was no reason why they should be discarded, and porcelain inlays were in the same category.

DR. WILLIAM HIRSCHFELD,

In reply, said that in regard to Dr. Day's remarks as to the best filling of teeth beneath the gums, it should not be forgotten that porcelain was a material which could not be melted by the action of the mouth, whereas gutta percha could be dissolved, gold attacked and amalgam suffer by the saliva. Therefore, if a porcelain filling fitted the tooth with the perfection it was possible to make it it seemed to him it was really the best material to keep the teeth from secondary decay. Dr. Sachs preferred gold where esthetic reasons did not force him to use porcelain, but he thought it was necessary to take another standpoint from that taken by Dr. Sachs. Dr. Sachs was one of the best representatives of American gold fillings in Europe, a man who could depend on what he did with gold. He could make a gold filling which was covered by the gum line, a most difficult matter. But it was desirable to take the standpoint of a man who did not practice in America or Germany, the standpoint, for instance, of a man who lived in France. Dr. Sachs' gold fillings were absolutely faultless, but if he lived in Paris and tried to impose his beautiful gold fillings upon the high class French ladies, those ladies, although they might submit the first time because they could not help it, would never come back to him again. They would say he had hurt them dreadfully. Now supposing Dr. Sachs had filled their teeth with porcelain, then he would be considered almost as a god in France. Under those conditions it was preferable to sacrifice a little of one's principles. It was all very well to say that a gold filling was sure, but it was also necessary to say that one had not only to please himself but to please his patients. Dentists who simply said that gold filling was the only thing would find in Paris that their clientèle was limited to those who would submit to their work, and they were few. The question of the patient had a great deal to do with the material to be employed, and that brought him to the remarks of Dr. Davenport. Dr. Davenport had touched on a subject that was a painful one to every dentist, those teeth which were extremely sensitive and which were liable to decay, no matter what material was used. It seemed to him that two possibilities were to be observable in such cases. If the teeth were very sensitive there were two courses open, either to persuade the patient to have the porcelain filling under the risk of seeing it come out eventually, or, as he would rather say, allow the teeth to be filled with cement. He was of opinion that cement would allow one to make a filling afterward with much less pain than at first. He had thought very much of dealing with the question of coloring. but did not do so as he was not able to recommend a sure and certain system for avoiding failures in that respect. It was all very well for Dr. Jenkins to say that his colors might be burnt always to the same point, but practice would probably have taught most men that it was a mere impossibility. Sometimes cavities were so shallow as to turn out much whiter than was desirable and no matter what cement was used afterward the filling would be a certain failure. For that reason he did not mention the subject of color, as he considered a filling to be an absolute failure when it was not right in that particular. Every doctor must have seen porcelain fillings which showed after a time discoloration round the borders. The decay did not go any further. It was exactly like the Richmond crown, which was held in place by the gold collar round the roots. In porcelain the saliva touched the cement round the border, but did not go any further. It could be observed by professional eyes, but the patients were not always keen on detecting it.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held January 17, 1904, with the president, Dr. Fred B. Noyes, in the chair.

Dr. S. J. Knowles read a paper on "Porcelain Inlays."

DISCUSSION.

Dr. C. N. Thompson:

Mr. President and Gentlemen—I desire to compliment the essayist on his well-balanced paper, especially his conservatism. Porcelain is being used indiscriminately in the posterior teeth, and he draws the line midway between its conservative use and using it everywhere, and suggests a good line of thought as regards how and when to use it.

Comparing porcelain with gold foil fillings as to permanency, there are several points to be considered, and one that should not be overlooked is the perfect comfort following the insertion of porcelain. It often protects the pulp in cases where if metal had been inserted instead, there would have been a root to fill.

In summing up the points of virtue, the only superiority that gold has over porcelain is greater edge strength. Porcelain is more comfortable, of better appearance, more easily inserted, less apt to recurrent decay and, owing to its glaze, more cleanly.

The comparative values depend, somewhat, upon the location of tooth or cavity; for instance, in labial, lingual, buccal and most proximal cavities they prove as permanent as any other filling. For incisal and proximo-incisal cavities, its natural appearance, resistance to thermal change, glaze and adhesive setting again reccommend it, but in proximo-occlusal cavities in posterior teeth we find a very different problem. Here natural appearance is of little note and, owing to the severe occluding stress to which these fillings are subjected, edge strength becomes of the greatest importance.

It is possible to so arrange such cavity outline that the margins will fall in secluded or protected places, as at or near the fissures between the cusps of molars, thus removing them from the points of greatest exposure. In bicuspids this is not possible. Here the only safety in preparing extensive proximo-occlusal cavities for porcelain is to cut away the entire cusp to a point a little beyond the summit and cut onto the axial surface deep enough to give bulk to stand. Cavity margins on the ascending slope of the cusp give a very thin or acute angle to the filling at that point, but, when carried beyond the summit, the reverse occurs. Then again, the tooth enamel at or near the cusp point is usually made up of short irregularly formed enamel rods which do not hold margin well and should usually be cut away if approached, no matter what the filling material is to be.

The essayist says that well supported porcelain margins do not fail, which is true, but cement does not absolutely support long and the chipping of the filling, which follows the wearing out of the cement, makes this weakness progressive, so much so that I have yet to see the filling that has been exposed for any length of time to masticating stress that was perfect at the margins.

The surface glaze on porcelain is of the greatest importance and is probably the cause of such marked infrequency of recurrent caries beneath these fillings.

Therefore, proximal surfaces of fillings should not be disked after insertion, which can be avoided by disking the filling to contour while in its cavity before the matrix is removed and glazing it again.

A good point mentioned by the essayist was with regard to the fact "that porcelain fillings being held in place by the adhesiveness of cement, it not only supports the entire cavity walls but seals them also." This is not the case with metal fillings, which expand and contract in a different ratio to the tooth, continually opening and closing even perfectly fitted marginal edges; and again, gold fillings that become slightly discolored shortly after insertion, indicating moisture in the cavity, would probably have given good service if they had been cemented to place. Most large metal fillings would prove better preservers if so treated.

In the process of making large, thick fillings, the essayist spoke of using high fusing rods of porcelain across the matrix to prevent warpage due to shrinkage of the body. This can be overcome by filling the matrix nearly full of very high fusing body and just before fusing use a very thin, sharp instrument and divide the carved filling from the cervix to the occluding end down nearly to the matrix and fuse, then place it in the cavity and break or split the filling at divided point and spread it out against the side walls and reburnish the matrix at the margin, then carefully insert a small chip of porcelain broken from a very high fusing tooth into the divide while the filling is still in the cavity and press it in solid, then complete the balance of filling with lower fusing body, being careful not to again fuse the first baking.

As to the swage method of securing matrix, I know little about the recent process. I have tried it, but can not see how, with our present ever changeable cements, it can be accurate, to say nothing of working on models twice removed from the original.

The process of cementing fillings in the cavity is of great importance and by many overlooked. Grooves cut in fillings for retentive purposes is a mistake; it not only weakens the filling but does away with the accuracy of fit. A groove can sometimes be used to slightly change the shade of the filling near the tooth by cutting a deep, narrow notch into the filling on the cavity side. This, when filled with cement of the desired color, will reflect through, changing the shade a little.

Etching produced by hydroflouric acid is now considered the best surface for cement attachment, but the chemical action of the acid on the porcelain leaves a residue in the form of a fine, white powder that must be removed before cement can be made to hold well. Clean cavities and fillings are great factors in good final results.

The handling of cements is pretty generally understood except that pressure on the filling, during the time that the cement is setting, greatly increases the adhesion.

There is reason to believe that cement occupies fully as much space between the filling and cavity as does the matrix generally used, and even more, and that there is always at least 1/1,000 of an inch occupied by it. This is something to be thought of when filling posterior occluding teeth with porcelain.

There is another item relative to the surface produced by hydrofluoric acid. Some of the bodies appear very much pitted or honeycombed by its action, while others have but the glaze removed. Now, the former presents a very much better attachment for cement and it is found that the foundation bodies are the ones that give the rough finish; it is also found that a mixture of some foundation and emanel bodies gives the best surface for this mechanical attachment.

Dr. John E. Nyman:

Mr. President and Members of the Society—At times there seems to come to me the conviction that I do not know very much about inlays, because of the fact that I do not get uniform results from my inlay operations. I have attributed that to a failure to simplify and systematize my operations, and after long experience, some of which has been bitter and some otherwise, it is now my endeavor in all my operations, first, to secure accuracy, and, second, to secure simplicity, and I believe the simpler the method is, providing the final result is accurate, the more uniform will be the results that one obtains.

Unfortunately for me, perhaps, my experience with burnished matrices is radically different from that of Dr. Thompson. I have conducted some experiments with burnished matrices, with the result that I found the second inlay I burnished would not fit a cavity which was an impression of the reverse side of the first burnished inlay. To my mind, the manipulation of a burnished matrix is such that it leaves a wide field for error. I have never felt that my inlay was a good fit for the cavity, with few exceptions, in simple cavities, until I adopted the swaging method. There are many things to be said in favor of the swaging method. It enables you to see more patients during those hours of the day when people want to come to you, leaving you free in the latter part of the afternoon or early morning hours, when people do not want to come to the dental office, to construct your inlays without the usual annoyance of interruptions of various kinds. Furthermore, you have an accurate model from which you can produce any number of duplicates. I do not know what the experience of the rest of you has been, but I have had to make over some of my porcelain inlays; I have had to start in all over again ,sometimes, just as I was about to complete them. One, just as I was cutting the groove, caught on the disk and went out of the window. It was a great source of comfort to me that I could sit down at my bench, take the impression, and start right in again without sending for the patient or letting the patient know that an accident happened. I care not how loyal a patient may be to his professional adviser, every accident, every failure he knows of personally—unconsciously, perhaps—shakes his confidence in that professional adviser, whoever he may be, so that in after years, should an accident happen in that patient's mouth, for which .the dentist is in no wise responsible, there comes back to the patient the memory of failures he witnessed or had knowledge of, and he begins to wonder perhaps whether the dentist was not to blame for the accident that has just happened in his mouth, and the more he thinks it over, the more he thinks it was the fault of the dentist.

I was a little bit disappointed in the character of the paper. It dealt in generalities. I will say, however, that my admiration for Dr. Knowles is about as great as it can be for any man whom I do not know better. I have watched the doctor since his advent into the profession, and have noted his progress with interest, and I have great confidence in him. But I was more impressed with Dr. Thompson's discussion, partly because of the fact that my acquaintance with him goes back for a period of about fifteen years, even back to college days. I have a long acquaintance with him, and the longer it grows, the more it increases my respect for his excellent judgment and ability.

I am glad he took up a detailed discussion of the preparation of cavities. I think that is a very essential factor for us to consider, especially the consideration of the little detail he spoke of as to the placing of the cavity margins with relation to the result of stress upon them and upon the margins of the porcelain inlay during mastication.

In regard to grooves in the inlay, and not in the tooth, if my memory is not faulty, I think Dr. Thompson said, as a rule (it has also been my experience), when an inlay loosened he found the cement had adhered to the tooth, but not to the inlay. That being the case, I can not understand the logic of the statement when he says that he never grooves an inlay, but grooves the tooth. If a groove is of any advantage at all for the retention of cement, it should, by virtue of his first statement and by experience, be made in the inlay in preference to the tooth. It is my practice to groove the inlay rather than groove the tooth. Sometimes I place an inlay in a cavity and both inlay and tooth need a groove. I am very careful to cut them so that these two grooves will approximate each other when the inlay is in place. If the groove in a tooth is not opposite the groove in the inlay, you may just as well dispense with one groove entirely, that is, the one either in the inlay or the tooth, preferably the groove in the tooth.

In regard to the action of hydroflouric acid on the porcelain body, I have noticed, when examining under a magnifying glass a high fusing body after hydrochloric acid has been applied to it (whether it is Brewster's, Close's or White's) that the hydrochloric acid has seemingly attacked certain ingredients of that body more strongly than others, and I should say that the hydrochloric acid attacked the most vigorously the flux of the body, which, as a rule, is a glass made of borax or potassium. Therefore, we find small crevices filled with little cavities, the surface is honeycombed, so to speak, which aids in the retention of the cement. It is my custom in applying cement to an inlay to take a fine bristle brush and force the cement into all of these little globules or pits in the porcelain with the ends of these bristles "stippling" it in, afterward using the brush to apply cement to the walls of the cavity of the tooth, and then simply forcing it home.

I wish the authors of papers and the discussionists in the future would deal with the problem of manipulation necessary in the formation of a matrix; first, to the preparation of the cavity with regard to the details, such as were mentioned by Dr. Thompson; second, the method of forming the matrix. I would say here, I think I have better results in swaging the matrix over the impression than in swaging it on to a model. It would take a little time to present my arguments as to why I think that method is better than the other, but I hardly think it is necessary to do so.

Lastly, I would like to have the members discuss the question of cements, their manipulation before insertion into a cavity, and their treatment after the inlay is in place. Furthermore, I would like to say, I make use of a very low fusing body, such as Jenkins, very frequently, to add to the contour of a proximal inlay of high fusing porcelain, after I have peeled the matrix off of the inlay. These bodies fuse at such a low temperature that, if the fusing is carefully done, the inlay undergoes no change whatever. The addition of low fusing body is merely for the purpose of obtaining contour for the proper proximal contact.

I have nothing further to say except to thank the essayist and Dr. Thompson for what they have offered.

Dr. W. T. Reeves:

I came here tonight with the intention of listening, and not to take part in the discussion. There are a great many present who ought to take part in this discussion and give their views on porcelain inlays. All of you have heard me, more or less, and know what my views on the subject are.

I enjoyed the paper very much. There is one feature I wish to refer to in regard to inlays for molars and bicuspids that are subjected to occlusal stress. That is an important feature. The cavities, of course, should be prepared with due regard to the stress that the filling has to bear. More important than that is the care with which the porcelain should be fused. I think the great majority of inlays that are put in occlusal cavities, subjected to stress, are broken or chipped because of faulty fusing of the porcelain, and not because of any weakness of the porcelain itself, if it is properly fused. It is a very easy matter to overfuse porcelain, and I think that in nine out of ten inlays porcelain is overfused. In cavities that are not subjected to any stress, it will not cut very much figure, a little overfusing; but in inlays that are subjected to stress, great care should be taken in the baking of the porcelain. It should not be baked to a high glaze, but just sufficient to give a glazed surface to the porcelain, and baked in that way you will run very little risk of disintegration starting in and making a friable porcelain. It has been my experience for a number of years that there have been hardly any of the occlusal cavities that have broken. A few may have chipped, but that has been due entirely to the porcelain being overfused. The fusing of porcelain is one of the first things the beginner should thoroughly comprehend, and he can only do that through personal experience, taking up and studying carefully the different stages and different qualities of the fusing. I place porcelain in all places subjected to all kinds of stress, in molars and bicuspids, and I find they are doing a great deal better service in those places for the teeth than gold fillings.

In regard to the building up of large contour inlays for molars and bicuspids that present a broad opening at the buccal and lingual corners, it is difficult to bake in porcelain and overcome the contraction that will draw those corners together. For the past year it has been my practice in that class of inlays to build in full with the foundation what would be a perfect contour for that filling. Shrinkage from fusing of that foundation will be about twenty-five per cent, which will leave plenty of room for the colors you put on to get the color of the inlay you desire. After thoroughly jarring the body into the matrix, I take a sharp carver and carve down beside each margin. It will leave a very small split between the body and the matrix. When that is fused shrinkage will have to come to the center, leaving quite a large crack at each margin, and consequently it will not pull these corners together. I have yet to have one that has failed to fit from contraction bringing the corners together, since using that method of overcoming it. The foundation you have in your matrix is sufficient, so that when you build in the enamel bodies for your color you will not get shrinking to distort your matrix. It has been successful with me since employing that method, and I have not had occasion to go back to the cavity with the matrix in order to correct the defect of the matrix from contraction.

In regard to cementing in the inlays, since the employment of hydrofluoric acid for etching the side of the inlays, I find the cement comes off attached to the inlay and free from the cavity. Previous to the use of hydrofluoric acid the cement remained in the cavity. I early recognized the presence of fine, palpable powder as the result of the action of the acid, and it was my practice to mechanically clean that inlay rather than to try to neutralize the action of the acid in any way, and the way I found the most effective is to take the inlay, which is embedded in wax which I have on the slab, placing it under the hydrant, using a stiff toothbrush, and mechanically remove all the acid and the resulting powder, afterward washing it off in chloroform, and I do not think there is any powder remaining upon the inlay after it is thoroughly cleansed in that way. It is very essential to have the inlay thoroughly cleansed of any suspicion of wax, and washing it in chloroform is the surest way of doing that. Wherever it is possible, it is my practice to adjust the rubber dam for setting an inlay and to obtain pressure by wedge or ligature, to confine the inlay in the cavity, so that the expansion will not make any perceptible joint.

DR. J. E. NYMAN:

I want to say one thing more that I neglected to speak about in my previous remarks. One frequently hears questions of this kind, "Doctor, do you ever fill teeth with gold or amalgam any more?" and the inlay enthusiast says, "Yes, sometimes"—and there it ends.

I would like to hear some discussion or a paper read which sharply defines cavities that at present should be filled with gold or amalgam and cavities that should be filled by means of a porcelain or gold inlay.

Furthermore, I want to say it has been a source of great comfort to me to have Dr. Knowles say that he found it necessary to reswage his matrices after successive bakings of the porcelain, and to have heard Dr. Thompson reiterate that he found it necessary to reburnish his matrices after successive baking of the porcelain. I have found it necessary to do that, and all my attempts to make inlays by burnishing or swaging methods, without reburnishing and reswaging them, resulted in failures, so far as accurate fits were concerned. Up to the time I began making inlays I thought I had as much manipulative skill as the average dentist, but it began to dawn on me that I did not have any at all, inasmuch as I did not get the results other men said they had obtained by the same methods. So I am very glad to have men of experience tell me that they reswage their matrices, and that I was not really so much at fault after all when I did not get a perfect fit without reburnishing and reswaging.

DR. KNOWLES (closing the discussion):

With reference to the remarks of Dr. Nyman, if I understood him correctly, he said he preferred swaging the matrix over the impression rather than over the model. I will admit, theoretically, that it is possible to obtain a more perfect fitting inlay by working over the impression, but practically it is objectionable on account of the mechanical difficulty in adapting the platinum into a sharp angle, which is the margin of the cavity. I do not see how Dr.

Nyman can reswage after he has once filled his matrix with porcelain, for I do not see that he has anything to swage against, for if the matrix is perfectly adapted over the impression, you have nothing to put it back into, because the volume is the thickness of platinum larger than the cavity itself.

DR. NYMAN:

Did it ever occur to you, Doctor, that I could take a mass of cement, such as I made my first impression with, press it upon the top of the matrix that is to be swaged, and thereby get a cavity? That is what I do, and reswage that afterward, which is done in the model.

DR. KNOWLES:

I have worked along that line, but the model you get is not a perfect one. as your matrix is not perfect on the inside, due to the thickness of the platinum folded into the angle.

DR. NYMAN:

That depends upon how you swage it.

DR. KNOWLES:

The question of overcoming shrinkage in porcelain inlays has been dwelt upon, and is a very important point. I have tried splitting porcelain in all imaginable ways, and the suggestion made by Dr. Thompson is one of the best I have ever heard, and I am going to try it. My reason for using a porcelain rod was because I found it to be the only way of overcoming shrinkage.

I think there is some distortion and shrinkage caused in trying to lift a platinum matrix out of the model, which is one of the advantages the porcelain rod possesses. In trying to burnish a matrix into a sensitive cavity, I think you will find it a great deal more trying on the patient to burnish a matrix in that cavity than it is to take an impression.

My experience has been the same as that of Dr. Reeves in regard to inlays that have been dislodged. I have seen several, and as nearly as I can remember, each one showed the cement on the inlay. The question of the porcelain breaking down from mastication is one that is practically overcome when perfection of fit is obtained in an inlay and the preparation of cavity, as well as all other details, are properly carried out.

REPORT OF SUPERVISOR OF CLINICS HELD AT THE MEETING OF THE NORTHERN ILLINOIS DENTAL SOCIETY, AT FREEPORT, OCTOBER 22, 1903.

[Explanation would be in order in behalf of the clinicians. In some cases they were unable to complete their clinics on account of the failure of the electric current and therefore they could not use the electric engines in the preparation of their work.]

CLINIC NO. 1.—DR. E. C. FRENCH, EAU CLAIRE, WIS.

A Crown, Upper Left Lateral Incisor.—Cut the root of the tooth lingually to the free margin of the gum, labially well under the gum, beveling labially, then concave the end of the root. Into this cavity a matrix of pure gold is burnished to fit the root. Then the root canal is enlarged for the reception of the post, which is prepared, and punched through the matrix. Remove matrix and pin together and tack with solder. This is then placed back on root and burnished again. After the matrix and pin are correctly adjusted to root, grind facing to fit well under the gum labially. Back up facing and remove matrix, and dry. Attach facing to matrix with hard wax. Replace on the root, and adjust until correct. Remove invest and solder. The crown was well made, well adjusted, set and presented a very good appearance.

CLINIC NO. 2.—DR. EDMUND NOYES, CHICAGO.

Removing Pulp and Filling Roots of Right Second Molar.—An arsenic application had been made and removed with a portion of the pulp about a week previous. There was slight sensation in the remaining pulp, which was controlled by cocaine. A rather persistent hemorrhage in the mesial root canal was finally stopped by the help of an adrenalin solution, but it prolonged the operation considerably. The canals were dried with cotton on a roughened Donaldson broach, dipped in eucalyptol, repeated several times, after which they were wiped with dry cotton and filled with warmed Hill's stopping. The first minute cone was fastened on the end of a small canal plugger, warmed over the lamp, dipped in eucalyptol and carried into the canal and churned down with small instruments until the soft material was carried to the end. The remainder of the canal was filled with cones of warmed Hill's stopping, churned in with hot instruments. The necessary plasticity is obtained in part by the solvent property of the eucalyptol and in part by heat, the object being to use as little of the solvent and as much of the heat, relatively, as possible.

CLINIC NO. 3.—DR. H. C. HEYER, FREEPORT, ILL.

Gold Filling, Upper Right Central Incisor, Restoring Incisal Edge.—Cavity prepared correctly, but operation was abandoned on account of failure of electric current.

CLINIC NO. 4.—DR. W. J. PHILLIPS, ELGIN, ILL.

Upper Left Second Biscupid, Buccal Cavity, Using Watt's Crystal Gold.—The object was to show the easy adaptability of Watt's Crystal Gold to cavities which are with difficulty kept dry. The cavity should be prepared with slight undercuts but no retaining pits, as the gold is easily started in one corner of the cavity, using a rather broad-faced plugger point and holding the first pellet in position until the others have been added to lock in place, after which we can proceed very rapidly. In many cases in the upper ten anterior teeth the rubber dam may be dispensed with.

CLINIC NO. 5.—DR. F. S. TRICKEY, FREEPORT, ILL.

Lower Left First Molar, Mesial Cavity.—Called emergency filling, using amalgam in bottom of cavity, finishing with Watt's Crystal Gold. This clinic was also interrupted by failure of the electric current and the doctor was unable to prepare the cavity as he otherwise would. The margins of cavity were not extended laterally sufficiently to avoid contact with the adjoining tooth. Filling was put in and well finished and presented a very good appearance.

CLINIC NO. 6.—DR. J. E. HARNED, ROCKFORD, ILL.

Table Clinic—Porcelain Inlay, in Different Steps.—The principal point was the doctor's second burnishing after first baking. In the baking of the porcelain he is very careful not to allow any porcelain to reach margins of the matrix. This allows a thorough burnishing of margins. There can be no springing away after this baking and burnishing. He follows Dr. Reeves' method as nearly as possible.

CLINIC NO. 7.—DR. C. J. UNDERWOOD, ELGIN, ILL.

Gold Inlays—Table Clinic.—In a molar with large lingual cavity involving much of occlusal surface, the pulp chamber and cavity first filled with cement, partially restoring contour with cement. Holes for retaining pins are made down through cement to desired depth while cement is in putty state, the pins being soldered to matrix, which is molded in usual way, using 1/1000 platinum foil. Pin is grasped by laboratory pliers and the investemnt consisting of whiting and water, flowed over under side of matrix and covering overhanging margins of cavity, when 20 K. gold is melted in place, the cusps being restored by first melting a globule of solder the estimated size and sweating it to place.

In a cuspid, inlay used as attachment for bridge. Lingual aspect of tooth ground down to pulp chamber. Platinum burnished over whole lingual surface, with large pin passing down through the platinum deep into canal. Invest and solder as before.

CLINIC NO. 8.—DR. R. C. BROPHY, CHICAGO.

Baking Porcelain with Gasoline Furnace.—The doctor exhibited two or three furnaces for inlays, crowns and bridges, where electricity can not be used. These gasoline furnaces answer a very good purpose.

CLINIC NO. 9.—DR. CHARLES TETER, UPPER SANDUSKY, OHIO.

Extracting Teeth, Using Teter Nitrous Oxide and Oxygen Apparatus.—With nasal inhaler anesthesia can be prolonged indefinitely for preparation of cavities or surgical operation.

CLINIC NO. 10.—DR. A. J. ELMER, BLOOMINGTON.

Pyorrhea.—While removing deposits from the roots, the doctor uses cocaine and adrenalin chloride solution to relieve pain and prevent hemorrhage. After deposits are removed he uses pulverized copper sulphate in the pockets. Operation successful.

CLINIC NO. 11.—DR. W. T. REEVES, CHICAGO.

Porcelain Inlay, Left Central Incisor, Mesial Cavity.—A matrix was burnished into the cavity by the usual methods of the clinician. A distinctive feature of this clinic was the building of the shading of the inlay. Clinic was successfully performed but he was unable to bring the best results owing to the difficulty of obtaining the proper heat in the electric oven and the inlay was finally finished in a gasoline furnace. Adaptation was very good.

CLINIC NO. 12.—DR. F. A. WELD, BELVIDERE, ILL.

Demonstrated the administration of narcotile as a general anesthetic, which he claims is particularly applicable in cases of short duration, such as removal of pulps, preparation of cavities, etc., as well as the extraction of teeth. Also stated that others of its commendable features were rapidity of action, compactness of the outfit, inexpensiveness and portability.

Patients were anesthetized in from one to two minutes and the duration of anesthesia lasted from two to four minutes, depending on the patient and operation in hand. Anesthesia is produced by the action of the drug on the spinal nerves, the sensory nerves being paralyzed first. Has no perceptible effect on the heart and usually no change of color.

CLINIC NO. 13.—DR. C. B. HELM, ROCKFORD, ILL.

This clinic was for making matrices for gold and porcelain inlays. For the porcelain inlay, after properly burnishing platinum in cavity, anneal and place back in cavity and pack about level full with tin foil. This carries the platinum to every part of cavity and holds it firmly while burnishing margins, by pressure on tin foil with an instrument or drawing a strip of rubber dam on top over it. Take out tin foil and remove matrix from cavity.

For gold inlays proceed the same way, except to pack gold foil instead of tin into the matrix and do not remove the foil but flow solder over it.

CLINIC NO. 14.—DR. GEORGE BANZETT.

Forming of Matrices for Inlays.—Takes strip of platinum large enough to reach around the tooth, which is then held in position by the fingers of left hand while burnishing with right. The doctor burnishes complete before matrix is removed wherever possible. For gold matrices, takes large piece of gold where cavity extends from gingival line to the occlusal surface. Uses wet cotton and burnishes. Secures very good adaptation and very good results.

CLINIC NO. 15.—DR. J. J. REED, BELOIT, WIS.

Cement Lining or Anchorage for Filling.—Table clinic in which gold and amalgam fillings were made in shallow saucer-shaped cavities with a cement lining to show method of working and strength of anchorage of the cement. The advantages claimed for this method are adaptation by which we get non-recurrence of caries, similar to inlays. Anchorage can be gotten similar to strength of inlay anchorage. It is a help in starting a filling and can be used for accessory anchorage. It prevents discoloration of cavity walls by amalgam. It binds filling and tooth together and prevents shrinkage of amalgam. It saves cutting for retention and saves pain to the patient and time to the operator.

A tiny bit of a thin creamy mix of Harvard cement was placed thinly over the cavity wall and the amalgam was introduced into the cavity and spread over cement and rubbed in till an all-metallic surface was obtained, then fill as usual with amalgam. In gold filling after lining cavity with cement Solila gold was built in till an all-gold surface presented, then finish with any gold desired.

CLINIC NO. 16.—DR. T. L. GILMER, CHICAGO.

Patient, twenty-four years old. Diagnosis, empyema of the left maxillary sinus. Conditions, pus present in the antrum. History indicates probable infection, resulting from diseased bicuspid which had been extracted. Antrum had previously been opened and curetted. Improvement followed this treatment, but empyema returned subsequently. Operation, a large opening was made through the buccal wall of the sinus above and anterior to the first molar. The cavity was thoroughly denuded of its lining and all necrosed bone and the first molar, whose roots penetrated to floor of the sinus, was removed. The cavity was then irrigated and packed with 5 per cent iodoform gauze.

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EDITORIAL.

THE COLLEGE COURSE AND THE FACULTIES ASSOCIATION.

At present writing there is a threatened disorganization of the National Association of Dental Faculties. Several colleges have already resigned, and others are in the balance. We sincerely hope that this association may be held together, and we trust that some movement may be started at once to accomplish this end. The culmination of the difficulty came as the result of the action taken at the recent meeting at Washington, whereby the requirement for graduation was placed at four years of six months in each session. This was considered by some as a retrograde movement, and the opinion has been freely expressed that the association can never hold together on such a basis. It seems difficult to arrange a course that will fit into the convenience of all the schools. Some are in favor of three years of eight or nine months as opposed to four years of six or seven months, while others claim that they can not maintain a nine months' course.

A close study of this question must force the conviction that the present plan of arrangement of the dental course is all wrong. It should be made more a matter of qualification than one of time, and although it seems necessary for the protection of the people that a minimum standard of time shall be established, and this standard maintained by rule of some responsible association, yet the tendency should be in the direction of arranging a course on the semester plan, and give credit for work as fast as that work is done. It is manifestly apparent to every teacher that there is a vast difference in the mental endowment of dental students and in their ability to acquire knowledge and attain results. What a farce, then, to put them all in the same hopper and grind them out in the same way.

About the only distinction now made between good students and poor students is that at the end of the final session the poor student is rejected—sometimes. And while this is infinitely preferable to allowing an unqualified student to graduate, it is exceedingly unsatisfactory and at times even distressing. To carry a student along through three or four years of college work and then be obliged to tell him at the end that he has failed is a disheartening procedure. The rejection of the slow or incompetent student should be begun earlier in his college career, and if the curriculum were properly divided into semesters this could be done. Let a rigid examination be held at the end of each semester, and let each student be placed precisely where he belongs as the result of this examination. It is not so serious a matter to compel a student to take another semester as it is to take another entire session, and the exact status of each student will be established early in his course. With this arrangement the dull student will not keep back the bright one, and a student will be advanced as rapidly as his ability merits. The course could then be regulated by semesters rather than by sessions or years, and a system of credits established showing the precise standing of each student in each college. A system of exchange of students between colleges on this basis could be arranged as readily as with the present plan, and the entire system would be more equitable.

It would, of course, involve greater work on the part of teachers, but this ought not to be considered for one moment if it promises better results, and just at this critical time in the history of dental education every endeavor should be made to prevent anything in the way of retrogression. For the regulation of all these matters a national association is badly needed, and we trust that the present one will be maintained upon a satisfactory basis or a new one organized upon a broader and better plane.

THE EDITOR'S DESK.

A PERSONAL EXPERIENCE.

A short time ago a patient came to me whom I had not seen for some time, but in whose mouth I had done considerable work in years past. The first glimpse at her teeth almost made me blush for shame. Verily, that was about the worst looking work I had seen in many a moon. I could scarce believe that I was the author of anything quite so bad, but the evidence was there, and I could not gainsay it. There was really not a creditable filling in the lot, and the only possible virtue the work could claim was that it had somehow saved the teeth. It was the most disheartening spectacle I had seen for a long time, and I went to work on some new cavities with considerable mortification, wondering all the while what could have been the matter with me when I attended the patient before. But the wonder soon ceased. The moment I began operating it all came back to me like a flash, and I was surprised that I should have forgotten the circumstances. The patient was one of those fidgety, jerky, flinchy, irresponsible creatures we sometimes meet, for whom it seems impossible to do creditable work, even though the operator gives but little pain. I was so chagrined at the appearance of the fillings I had previously made that I began somewhat firmly to reason with her about her behavior in the chair. I told her frankly that I was ashamed of the character of work I had done for her, and that if she wanted to have reasonably good work she must exhibit at least an attempt at fortitude. Although this was said in the kindliest possible manner, my immediate answer was a copious flood of tears and a declaration that she just could not stand it. And then came the confession that she had previously left me because I had hurt her so much, only to try several other dentists who had hurt her more, and now, after coming back to me again and finding that it was so very dreadful, she was determined to let her teeth go and not try to save them. The fact is that this woman did not really suffer much pain in having her teeth filled. They were not particularly sensitive, and she complained fully as much at a perfectly painless part of the operation as she did when there might have been some pain. It was simply that she was so constituted that she would not voluntarily tolerate anything in the least disagreeable, and she magnified every trifling discomfort into a mountain of agony till it was really a trial to have anything to do with her.

What was my duty in this case? To stand on my dignity and tell her that unless she could permit me to do work that would be a credit to me I should have to decline to operate for her (which decision would surely have abandoned her teeth to destruction), or treat her in the kindliest and most tender manner and accomplish the best I could for her under the circumstances, regardless of what the resultant operations might look like subsequently?

It is needless to say that I adopted the latter course. I would rather save teeth for such patients as these, even with ill-looking fillings, than to gain the reputation of being the most brilliant operator in the world.

DOMESTIC CORRESPONDENCE.

Call a Halt.

There ought to be a halt called in the manner of construction of continuous gum dentures as done in some of the dental laboratories.

The ideal denture, when properly constructed, the strongest as well as the most artistic, is being turned out in such a way as will, sooner or later, bring discredit upon the system.

My attention has been called to it by a lower set recently brought in for repairs. Mechanically and artistically a perfect botch, made three years ago, now broken in two, plate and all, it is a wonder it has lasted so long; in fact had already been repaired once.

A flat, narrow plate, only one-quarter of an inch wide in front, one in which every effort should have been made to strengthen it, was put together in the most flimsy manner—a thin plate, which should have been doubled. There were no backings on the teeth, while plenty of room; the pins on the back teeth not reaching to the plate, a little tube of platinum was slipped onto the end of the pins and thus soldered to the plate. As a matter of course, the teeth were pulled out of place by the shrinkage of the porcelain. There was an upper set also, no better in construction, so far as external appearance was concerned. The edge of the plate turned with pliers, a bit of platinum soldered to the posterior margin; on the lingual side the gum was extended to the tops of the teeth.

And as to articulation, the only teeth that touched were the incisors and molars on one side.

The fact is it is impossible to properly construct one of these dentures at the price charged at these laboratories. The materials alone, at the present price of platinum, cost as much as the advertised charge for materials and labor.

From an artistic point of view the work is done by those who have had no proper instruction. L. P. HASKELL.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago Ill.]

Method of Adjusting a Clamp:—If a clamp impinges on the gingivæ and hurts the patient, open the clamp with the forceps and place a pellet of cotton between the gums and the jaw of the clamp. HOMER ALMON.

Suggestions:—Too many teeth, that can and ought to be filled, are being crowned.

He who mummifies pulps which can be removed by mechanical or chemical means, is a dental "hobo" and such procedure should be considered malpractice. C. R. TAYLOR, Streator, Ill.

Drying Out Root Canals:—The advantage a chip blower heated over an alcohol lamp has over an electric hot air syringe, is this: The air taken in by the chip blower from an alcohol flame is converted into formaldehyde gas and is the best disinfectant on earth. HOMER ALMON.

To Soften Moldine:—Take a freshly mixed piece of plaster of paris and place the moldine upon it, leaving it over night. The moldine will absorb sufficient moisture from the plaster. To get rid of extra moisture in moldine lay it upon a dry pine or poplar board. HOMER ALMON.

Convenient Use for the Rubber Dam:—A strip of rubber dam about two inches wide and four inches long—or as long as necessary for the case—placed over a heavy moustache and tightened up with the Cogswell holder will give great comfort to the operator while working on the posterior lower teeth.

OLIVER MARTIN, Ottawa, Canada.

Temporary Filling:—Absorbent cotton saturated with cement which has been mixed to a creamy consistency makes an excellent temporary filling material. It will last for months. If only required for a short time, nearly fill the cavity with dry cotton before inserting the plug. This will facilitate the removal of the filling when it becomes necessary. R. E. SPARKS, Kingston, Ont.

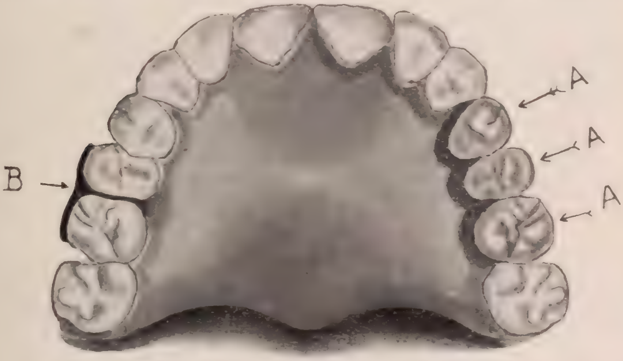
Adapting the Margins of Matrices for Inlay Work:—Where a disk can be adapted to the margins of a cavity the platinum matrix, after being pressed to position in the cavity by any of the various methods employed, can be burnished to the margins conveniently by the use of a fine cuttle fish disk with the engine. If a disk is employed to shape the margins of the cavity prior to fitting the matrix one can easily be used to burnish the matrix to the margins. A very fine cuttle fish disk will not cut or tear the platinum and revolving rapidly will force it against the margins of the cavity evenly and effectually.

To Prevent Soreness of the Lips After Operating:—White perfumed vaseline will be found a most excellent preventative of sore lips from long and repeated applications of the rubber dam. Although many ladies object to its use on account of the general impression that it stimulates the growth of hair, I find upon explaining the good results from its use, the avoidance of the so-called cold sore, they will gladly submit to its application. Two covered porcelain jars with the pure white vaseline are kept in the operating case, the contents of one for use as an application around the mouth, the contents of the other for strips and disks. By cleaning the porcelain jars every day, and placing in them a small quantity of the pure clean vaseline, they are ready for use. and if need be, the inspection of the most particular patient. It is the exception that the most fastidious lady when handed the porcelain jar and the explanation is made for its use, will not apply it immediately, and later bless you for having suggested it. Undoubtedly the saliva saturating the skin and held there by the rubber plays an important part in addition to our pulling and stretching the mouth. in producing these disagreeable sores. In long operations, especially in molars and bicuspids, a second and third application sometimes is indicated, which can be made by loosening the dam from holder, drying the corner of the mouth thoroughly with napkin, then reapplying the vaseline. If applied to lips when they are dry or cracked it softens them to such an extent that much of the discomfort of an operation is avoided. W. T. CHAMBERS, Denver, Colo.

Filling an Impression for a Crown:—In making a model for an anterior crown, difficulty is sometimes experienced in flowing the soft plaster around the pin and cap in the impression, without forcing it from the correct position. By holding a small amount of freshly prepared soft plaster on the spatula near the pin it can be conveniently forced to position over the cap and around the pin with the aid of a chip blower, without danger of dislodging it from the correct relation, as no jarring of the impression will be necessary. The impression can then be filled in the usual way. This method will be found advantageous in investing delicate matrices for inlay work, or any work requiring care in making the investment.

Keep a Record of Your Treatments:—The various dental ledgers will probably meet the requirements necessary to record all permanent work, but a small book kept in a convenient place near the operator's chair, will be found useful for recording the daily treatments. The busy dentist can not retain in his mind the condition of each tooth he treats temporarily, and the result is that he must practically diagnose every case when it is presented no matter how often he has treated the tooth before. The examination form will at once show him which teeth require his attention, but it will not give him any aid in determining the condition of the teeth at the last sitting. Very often a dentist will remember the condition of an individual case and it is right that he should. It will not always be necessary for the careful practitioner to rely solely upon records, but a record will show him the condition of the tooth at the last sitting and he can instantly determine what course to pursue. It will take less time to record the treatment and prognosis than to make even a brief diagnosis when the patient calls for treatment. This method will also serve as a reference for the operator to determine the correct fees he should receive for each tooth. After the work is completed he can refer the patient to his record and charge a reasonable fee, which might otherwise seem exorbitant.

Retention Device for Partial Plates:—A partial plate, requiring teeth on one side only, may be prevented from tipping during mastication by adjusting a piece of clasp metal between two natural teeth on the opposite side and attaching a crosspiece to fit against the buccal surfaces. A A A in the illustration represents the artificial teeth and B the metal T. HOMER ALMON.



COLLEGE COMMENCEMENTS.

UNIVERSITY OF MINNESOTA COLLEGE OF DENTISTRY.

Graduates—Paul Wood Barney, Charles Ulysses Bell, David William Bennett, Theodore Olaf Braafladt, Arthur Henry Cox, Walter Cornwell Cullum, Jay Monroe Freeburg, Robert O. Green, William Alexander Grey, Leonard James Johnson, William Joseph Leffek, Axel O. Lillehei, Duncan Adrian McRae, Edwin William George Mihleis, George Alfred Montelius, Albert Carlos Nelson, Albert Alonzo Reed, Arthur Nelson Rice, Don DuVello Rider, Joseph August Schacht, Guy Benjamin Steadman, William Henry Strong, Walmer Turner Sture, Carl August Swenson.

NEW YORK COLLEGE OF DENTISTRY.

Graduates—Otto Acker, Joseph Robert Armstrong, Andrew Jackson Asch, Arthur Waldemar Bark, Eugene Samuel Baum, Simon Berlin, Isidore Berowicz, Ph. D., Edward Peter Betzig, Edward William Burckhardt, Herman Bennett Cahen, Abraham Bernard Cohen, Moritz Cohn, Theophile Conzelman, James Joseph Curtin, Samuel Eisner, Walter Frederick Engel, M. D., Michael Epstein, John Peter Frank, Jacob Albert Gam, Samuel Max Getzoff, George Ginsberg, Adam Glutting Jr., Alfred David Goldstein, Abraham Herman Goodman, Ph. G., Arthur Victor Greenstein, Charles Grosch, Charles Joseph Haas, Henry Yetta Halley, Albert Harris, Frank James Holmes, Bruno Waldo Kirschner, Herbert John Kocher, Alfred Leitner Kohn, Montgomery de Forest La Roche, Maurice Wilfred Lubitz, Morris Mencher, Irving Underhill Miller, Louis Neuwirth, Frank Wickham Norris, Edward Joseph O'Byrne, Andrew Henry Oeder, Edward Paymer, Nathaniel Lazarus Polinger, Sydney Carton Rhodes, Adolph Ritt, Harry Salomon, B. A., William Irving Sax, Samuel Spencer, Emil Singer, Warren Jay Smadbeck, Henry Spenadel, Louis Startz, Fritz Julius Swanson, Robert Irving Teichman, Heman Ermo Tompkins, Walter Scott Torrance, William Bell Tyrrell, Edwin Lew Walker, Jerome Milton Woodle, Joseph Wortmann.

OHIO COLLEGE OF DENTAL SURGERY.

Graduates—Erl R. Beatty, Robert C. Boggs, Carl H. Bowlby, Charles A. Bradshaw, Edgar Christensen, John F. Clark, Stanley M. Clark, Franklin B. Conkle, Frank T. Craven, Claude R. Crawford, Walter B. Dimond, Arthur S. Devore, John Eli Dysart, Gustav Eckstein, Charles B. Emery, Harry J. Emery, Frank L. Falknor, Clyde M. Gearhart, Arthur O. Glass, David K. Goodman, John W. Gordon, Vernon M. Gregg, Daniel D. Griffith, Joseph A. Grimes, Edward Everett Hadley, Harry Leon Hale, Russell F. Hale, Carl M. Harvey, Willie D. Herr, August J. Hibschman, Oliver C. Hill, Kenworthy M. Hoge, Hugh H. Holbrook, Harold Holmes, Chester Perry Holt, Joseph H. Howard, Sarah Lucy Huff, Lloyd S. Huhn, Frank A. Humphrey, Von Weber Hunt, Oscar Edmund Imig, J. Gallitin Kearby, William F. Knemoeller, Daniel J. Lloyd, George B. Lowry, George F. McCombs, Henry Edwin Motch, James H. Moyer, William F. Outcalt, Chester A. Peake, Orion B. Pfouts, P. Kendrick Phillips, Courtland L. Pollit, Charles V. Pollock, Hiram L. Scott, Jesse M. Scott, Joseph Park Shai, Verna R. Shriner, Warren A. Shurz, Eddie Bay Smith, S. Robert Snodgrass, M. A., C. Edgar Srofe, Randall H. Tinsley, Robert C. Van Osdol, Ernest S. Walker, George O. Walton, Simeon G. Walton, Harry Watson, Miss Catherine H. Whallon, Herbert S. Whitney, Clinton H. Woolgar, M. D.

MEMORANDA.

A DENTAL PRESS ASSOCIATION.

The editors of the Swedish, Norwegian and Danish dental journals have formed a press association under the name of *Nordisk Odontologisk Pressklub.* We wish the organization every success.

AMERICAN SOCIETY OF ORTHODONTISTS.

A special meeting of the American Society of Orthodontists will be held in the rooms of the Orthodontia Section of the Fourth International Dental Congress in the Coliseum, St. Louis, at 10 a. m., August 29, 1904.

ANNA HOPKINS, Secretary.

NORTHERN INDIANA DENTAL SOCIETY.

The date of our next annual meeting, to be held at Huntington, Ind., has been postponed to October 18 and 19, 1904.

A programme of unusual interest has been completed, a synopsis of which will be announced in the next issue of this magazine. Don't forget to read it.

OTTO U. KING, Secretary.

A FREE DENTAL CLINIC.

A dental clinic has been established in connection with the New Haven free dispensary under the supervision of Dr. Edward S. Gaylord. This clinic was made possible through the public spirit of three citizens of the name of Hooker, and it is hoped that other philanthropic individuals will follow their example and contribute something for the teeth of the poor. These clinics should be established in every city.

THE INTERSTATE DENTAL FRATERNITY.

The Interstate Dental Fraternity will hold its annual meeting at St. Louis on Tuesday, August 30th. The business meeting will be at 3 p. m., to be followed by a banquet.

The committee in charge are Dr. Burton Lee Thorpe, chairman; Dr. Edward Everett Haverstick and Dr. Ernest P. Dameron. Members may procure their banquet tickets in advance by remitting to Dr. E. E. Haverstick, 346 North Boyle avenue, St. Louis. R. M. SANGER, National Secretary.

THE NATIONAL CAPITAL DENTAL SOCIETY.

On May 13, 1904, the above named society was incorporated in Washington, D. C. The society has adopted the code of ethics of the National Dental Association and has a perpetual charter under the laws of the District of Columbia. The following is a list of officers:

President, Dr. James A. Hunter; vice-president, Dr. William B. Daly; recording secretary, Dr. Starr Parsons; treasurer, Dr. Jesse B. Schafhirt; librarian, Dr. Chester Beatty; corresponding secretary, Dr. J. K. Halley.

"FACIAL NEURALGIA."

In Dr. Perry's remarks in our June issue, page 597, a mistake was made in reporting. The first paragraph should read as follows:

"I noticed in the paper of this evening the author did not mention a form of facial neuralgia infrequently occurring in the lower jaw particularly which is usually accompanied by paralysis of the soft tissues, greater or less in extent according to the severity and length of time of the affliction and caused by a nodular growth on the apex of the root of the second bicuspid or anterior root of the first molar, known as excementosis."

MCLEAN COUNTY DENTAL SOCIETY.

At a special meeting Monday evening, June 20th, at Bloomington, Ill., the McLean County Dental Society met and elected the following officers:

President, B. M. Van Dervoort; vice-president, J. W. Crigler; secretary, J. S. Reece; treasurer, M. D. Young; executive committee, O. J. Jarrett, J. W. Kasebeer, C. P. Holland; board of censors, H. A. Stevenson, W. H. Land, A. M. Wilkes.

Five new members were added to the roll, making in all a total membership of thirty-two. DR. J. S. REECE, Secretary.

THE FOURTH INTERNATIONAL DENTAL CONGRESS BANQUET

Will be held on September 1, 1904, at 8 p. m., in the coliseum adjoining the congress hall. The price per plate is three dollars. It is requested that all who expect to attend send their names and money to Dr. A. H. Fuller, P. O. Lock Box 604, St. Louis, Mo., at once and not later than August 20th. Arrangements to pay can be made with Dr. A. H. Fuller at the time of registration, provided notice is given before August 20th.

G. A. BOWMAN,
A. H. FULLER,
ADAM FLICKINGER,
Banquet Committee.

RECENT PATENTS OF INTEREST TO DENTISTS.

760,295. Obtaining correct dental impressions, Willis E. Allen, Honolulu, Hawaii.
760,397. Dentifrice, Edward C. Kirk, Lansdowne, Pa.
760,050. Dental swaging machine, George B. Wortman, Massillon, Ohio.
760,800. Rubber dam holder and cutter, Frank R. Nice, Lansing, Mich.
760,578. Toothpick holder, Conrad P. Steinmetz, Mitchell, S. D.
760,943. Dental manikin, Edward P. Wright, Richmond, Va.
761,193. Tooth brush, Adolph P. Blanchard, Brooklyn, N. Y.
761,155. Making dental plates, Lucien Eilertsen, Paris, France.
761,273. Dental mouth-mirror, Robert Walker, New York, N. Y.
762,086. Dental chair, Frank Ritter, Rochester, N. Y.
762,289. Crown tooth, Frank H. Davis, Chicago, Ill.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

AMERICAN DENTAL TRADE ASSOCIATION.

"*Whereas,* In the estimation of our Association, which is composed of the representative manufacturers of and dealers in dental supplies in the United States, the amendment to patent laws introduced in Senate bill 4256, House bill 6771 will remove a class of patents which have long caused annoyance to the dental profession:

"*Therefore,* Be it resolved that the American Dental Trade Association heartily endorse the amendment and urge favorable action thereon, and that the secretary be instructed to notify the committees having the amendment in consideration of such action."

The amendment referred to reads as follows:

"But no patent shall be granted upon any art of treating human disease or ailment or disability or upon any device adapted to be used in the treatment of human disease or disability or attached to the human body and used as a substitute for any lost part thereof or upon any art of making such device, unless such device is adapted to be put on the market and sold."

L. S. SMITH, Secretary.

RESOLUTIONS ON THE DEATH OF DR. JONATHAN TAFT.

Whereas, In the death of Dr. Jonathan Taft, which occurred at Ann Arbor, Mich., October 15, 1903, the dental profession has lost a most valuable member; one who gave generously of his knowledge for the advancement of his ideals; a noble manhood, ideal operations and faithful services; a man unselfish, gifted, kind and true, using his God-given talents for a noble purpose—serving man; and one whose fidelity and Christian character must ever be an example to the coming generations of an ideal dentist. Therefore, be it

Resolved, That we, his followers, and members of the Northern Ohio Dental Association, in annual convention assembled at Cleveland, June 7-9, 1904, express and record our appreciation of his noble life and generous contribution to the dental profession; and urge upon every member to live the life this gifted man lived in order to bring to pass his conception of an ideal dental profession.

C. R. BUTLER,
CORYDON PALMER,
F. S. WHITSLER,
Committee.
C. D. PECK,
Recording Secretary.

FEDERATION DENTAIRE INTERNATIONALE.

The next (fourth annual) meeting will be held in the Coliseum Building, St. Louis, Mo., August 26th and 27th. The first session will convene under the presidency of Dr. Charles Godon, at 11 a. m. There will be a meeting of the Executive Council on Thursday, the 25th, at the Hotel Jefferson, at 10 a. m.

The Section on Education will meet at 3 p. m., Friday.

The Section on Hygiene and Public Dental Service will meet at 3 p. m., Friday.

The Section on International Dental Press will meet at 4:30 p. m., Friday.

The officers of the Sections are as follows:

Education—President, Dr. T. W. Brophy; vice-presidents, Dr. E. C. Kirk, Dr. W. B. Paterson and Dr. O. Zsigmondy; secretaries, Dr. M. Roy and Dr. R. B. Weiser.

Hygiene and Public Dental Service—President, Dr. W. D. Miller; vice-presidents, Dr. Cunningham, Dr. Forberg, Dr. Jenkins and Dr. Rose; secretaries, Dr. R. Heide, Dr. Sauvez and Dr. R. B. Weiser.

Commission on the International Dental Press—President, Dr. E. Forberg; vice-president, Dr. A. W. Harlan; secretary, Dr. E. Papot.

Executive Council—President, Dr. Charles Godon; vice-presidents, Dr. A. W. Harlan, Dr. W. D. Miller; secretary, Dr. E. Sauvez; treasurer, Dr. F. Aguilar; members, Dr. George Cunningham, Dr. E. Forberg, Dr. R. B. Weiser, Dr. J. E. Grevers, Dr. F. Heide, Dr. Klingelhofer.

On behalf of the Federation,
A. W. HARLAN, Vice-President.
1122 Broadway, New York City.

June 16, 1904.

UNIVERSAL EXPOSITION
FOURTH INTERNATIONAL DENTAL CONGRESS.

AUGUST 29 TO SEPTEMBER 3, 1904, ST. LOUIS.

The local committee and bureau of information wish to dispel from the minds of the profession and all persons that labor under any misconception that the rates of St. Louis hotels are extortionate.

We have investigated the conditions and rates of the leading hotels of St. Louis, and nothwithstanding the fact that this city is entertaining a World's Fair, the hotel rates are no higher than in other cities.

We will append a number of the leading hotels and rates of same and call your attention that it is not required of you to put up at any of the hotels mentioned, as there are many hotels and boarding houses in the city where rooms can be secured for from 50 cents to $2.00 per day. The exact date should be stated in securing rooms.

We append a list of hotels and rates of same as follows:

SOUTHERN HOTEL.

The American plan rate is $5.00 per day for room without bath and $6.00 a day for room with bath. The rate is $10.00 per day if two persons occupy the room.

PLANTERS' HOTEL.

Room without bath, occupied by one person, $3 to $4 a day. Same for two persons, $6 to $7 a day. Room with bath for one person, $4 to $5 a day, and for two persons, $7 to $8 a day.

JEFFERSON HOTEL.

Room without bath, for one person, $4 a day; when occupied by two persons, $6 a day. Room with bath for one person, $5 a day and up; when occupied by two or more persons, $7 a day and up.

ST. NICHOLAS HOTEL.

Room without bath, for one person, $2.50 to $3.50 a day; for two persons, $4 to $5 a day. Room with bath, for one person, $3 to $5 a day; for two persons, $5 to $7 a day.

LINDELL HOTEL.

Room without bath, for one person, $2 a day; for two persons, $3 a day. Room with bath, for one person, $3 a day; for two persons, $4 a day.

WASHINGTON HOTEL.

Room without bath, for one, two or three persons, $5 to $7 a day; room with bath for one, two or three persons, $8 a day.

LACLEDE HOTEL.

Room without bath, for one person, $1.50 to $2 a day, for two persons $3 a day; room with bath for one person $3 a day, for two persons $5 a day.

TERMINAL HOTEL.

Room without bath for one person, $2 to $3 a day; for two persons, $4 to $5 a day. Room with bath, for one person $5 a day, for two persons $7 a day.

MOSIER HOTEL.

$1 to $3 per day, European plan, with Silver Moon Restaurant attached at very reasonable rates. Located at Ninth and Pine streets.

HOTEL ROZIER.

Opposite Exposition Building, Olive and Thirteenth streets. Rooms without bath $1 to $2 a day.

MAMMOTH HOTEL COMPANY.

Southeast corner Olive and Twelfth streets. Can accommodate 2,500 guests per day at rates from 50 cents to $1.50 per day.

THE INSIDE INN.

With a capacity for 5,500 people, is within the Exposition Grounds, erected under a contract with the Exposition Management, stipulating its rates.

This hotel offers 500 rooms at $1.00 per day, 500 at $1.50 a day, 500 at $2.00 a day and the remainder, which are larger, with baths, at higher rates.

The Napoleon Bonaparte, the Forest City, the Fraternal, the University, the Kenilworth, the American, the Epworth, the Grand View, the States, the Oakland, the Iowa, the Guaranty, the West Park, the Christian Endeavor, the Visitors, and others, with a capacity for from 500 to 5,000 guests, are within easy walking distance of the World's Fair gates. In fact we have hotels, boarding houses, apartment houses and rooming houses all over the city, of respectable character and on the street car lines.

An impression prevails that there may be lack of accommodation at reasonable prices. Not only will there be sufficient room for all who come, but the rates will be reasonable. We appeal to the profession of the country to give information respecting the accommodations in a spirit of fairness and justice to St. Louis based upon the above facts.

St. Louis is prepared to care for and welcome all comers and to show them the grandest Universal Exposition of the world's resources and products in the history of man.

The Fourth International Dental is now an assured success. Many foreign nations have signified their intention to take part in this Congress. The islands of the Pacific Ocean will be well represented. Their assembling in the center of this great Republic should stimulate every American dentist to action and each individual of this great profession should feel under obligations to help push the Congress to a successful issue. We have our professional record to maintain and act the part of host. As a consequence we should endeavor to sustain the reputation of American hospitality.

Here is the birthplace of the Dental College, the most of the inventors, the mechanical geniuses, and the men who have brought about the wonderful advances in our great profession.

We trust the profession of America will take hold with their accustomed vigor, let nothing be undone that will be for the good of the profession, and carry it out with a most liberal spirit to a surprising conclusion.

A list of hotels, boarding houses, rooming houses and private homes, with their rates appended, will be furnished by the Committee to all asking for same. Any other information will be freely given by corresponding to any of the following committee:

D. O. M. LeCron, chairman, Missouri Trust building; Max Fendler, secretary, Missouri Trust building; H. F. D'Oench, George H. Gibson, S. H. Voyles, Orme H. Manhard, Joseph G. Pfaff, G. S. Kitchen.

LONG-WINDED ARTICLES.

If our writers on dental subjects have one fault more than another it is in the line of using too many words to express their ideas. Life is short—at least that part of it which may be conveniently used for reading professional periodical literature. No man who is tired at the end of a day's operating wants to read half a dozen pages of a dental journal to get one idea. Writers owe it to their readers to so crystallize their thought that it is clear, concise and consecutive. The trouble with most writing is that there is too little thinking in advance of it. An idea must be perfectly studied and systematized in the mind before it can be properly expressed on paper. The oft-repeated remark that easy writing makes hard reading is as true to-day as it was a century ago, when it was first uttered.

Readers in this age want most to know how things are done, and they want to be told in the shortest possible way, in the most vivid language. The majority of writers can not do this without painstaking care in the expression of their thoughts. And with this care, this conscientious grinding away at the desk in the quiet hours, when the world is for the most part asleep, an average writer will soon acquire the concentration of thought necessary for correct expression. This kind of training is as beneficial to the mind of the writer as it is conducive to the satisfaction of the reader. The ability to think clearly is the first requisite to writing clearly, and every writer can so discipline his mind as to vastly improve his mode of expression.

Cut down your long-winded articles and make them crisp enough to read before breakfast.

THE

DENTAL REVIEW.

VOL. XVIII. CHICAGO, AUGUST 15, 1904. NO. 8

DIAGNOSIS AND TREATMENT OF FRACTURES OF THE INFERIOR MAXILLARY BONE.*

BY WILLIAM H. G. LOGAN, M. D., D. D. S., CHICAGO.

The accident of fracture of the inferior maxillary bone is of such frequent occurrence, and its advised treatment so varied, your essayist has deemed it a subject worthy of your consideration.

The diagnosis of fracture involving the body of this bone is not difficult, providing the following characteristic symptoms present themselves: Mal-alignment and mal-occlusion of the teeth; elevation of the short and depression of the long fragment, with the pressure of one or two loose teeth at the line of fracture, give us the important symptoms that we expect to find accompanying this accident; when we have a displacement of the parts the weak lines in the body of the bone are, of course, the points where we most frequently find the part broken, and are as follows: At cuspid tooth, the mental foramen and between the first and second molar teeth. It is rare that we see the line of accident just behind the third molar, and indeed this is a fortunate state of affairs, for when the short fragment has no tooth or teeth to which the mechanical appliance can be attached, a surgical operation is frequently demanded.

Fracture of the ramus within the lines of attachment of the masseter muscle, and of the body when there is no displacement, are at times difficult of detection and are frequently overlooked even by the most careful diagnostician; but if you keep in mind that the usual cause of this accident is a fall or blow on the part, and that when a patient presents himself with the above history, plus the statement that he can not close his teeth firmly upon any substance without pain, it should lead you to suspect very strongly that you have a fracture to deal with, even though you find no displacement of the parts or noticeable inflammation present.

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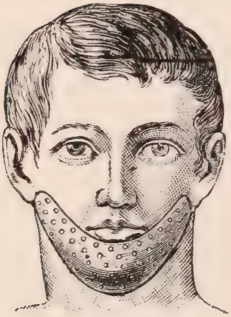
* Read before the Odontographic Society of Chicago.

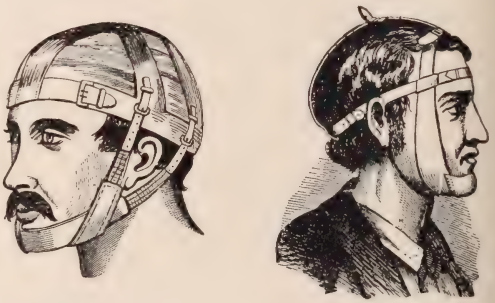
In the diagnosis, when there is no displacement of the fragments, the following procedure is recommended: Place the index finger on the lingual surface, and with the other hand grasp the body of the bone and hold it prefectly secure. Then, by creating pressure with the index finger along the various suspected locations, where, if a fracture be present, false mobility of the part will be demonstrated, and by holding your ear close to the patient's cheek as you cause the fragments to pass over one another, the pathognomotic, grating sound will be heard.

FIG. 1.



Levis Splint
(after Grant).

FIG. 2.



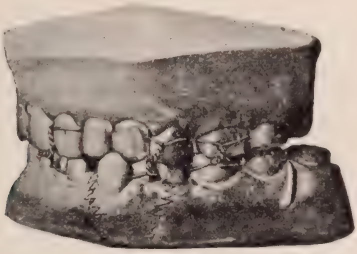
French Dressing Hamilton Bandage
(after Garretson).

The rule is that fractures of this bone are complicated and compound and easy of diagnosis because of the resultant displacement. However, one should be ever mindful that only by the most careful examination can one discover the line of accident without the employment of the X-ray in certain cases.

The diagnosis of fracture accomplished, we shall now pass to the consideration of its reduction. The frequency of fractures of the mandible has resulted in bringing before the profession many ingenious methods for their reduction, and while it is not my intention to enter upon the consideration of their reduction I desire in part to speak of their relative values, and in conclusion advocate the discarding, in a majority of cases, all these various procedures except four.

In our most recent works upon oral surgery we find such authors as McCurdy recommending for transverse simple fractures the bandages of Hamilton, Barton, Heath or Gibson, while Grant, in his work of surgical diseases of the face, mouth and jaws, states that the most suitable treatment, unless you have a complicated case, is the Levis splint, to be held in place by the Barton or the ordinary four-tailed bandage. The Levis splint is shown in slide No. 1, while slide No. 2 represents the Hamilton bandage. Also we have here shown the dressing as applied most frequently in Europe by the medical fraternity as a treatment of this accident. We shall not analyze the merits of the Levis splint held in position by the four-tailed bandage as compared to the Hamilton or French dressing, as represented in slide No. 2, because we believe that fractures of the mandible should never be treated by a method that does not more securely immobilize the fragments and create such constant pressure on the tissues of the face, for the reason that the comfort of the patient and the union without deformity are the two thoughts the operator should keep uppermost in his mind while considering what procedure to follow. If the fracture is at the angle or through the ramus, and you have a number of occluding teeth present, I would advise the wiring of the teeth together, as represented in slide No. 3, or the variation of the same method as advocated by Dr. Gilmer. But when the accident occurs to the body of the bone, leaving teeth in both long and short fragments that are securely set in their alveolar sockets, the method of treatment

FIG. 3.



(After Barrett).

I would advise, if the case be a recent one and extensive suppuration is not present, is to take an impression in modeling compound of all the teeth in the inferior arch, and in the instance you find that a displacement has occurred it will be necessary to take a similar impression of the teeth of the superior arch, constructing from the impression models in plaster, the one representing the lower jaw will not be normal, because there was a displacement of the fragments when the impression was taken. To overcome this deformity, as found in your model, saw out a V-shaped piece at the line of fracture and place the occluding surfaces of these teeth against the similar surfaces of the teeth in the superior arch. While holding these models in their proper occlusal relation, flow soft plaster into the V-shaped opening, thereby getting a perfect model of the mandible presenting the normal articulation of the teeth.

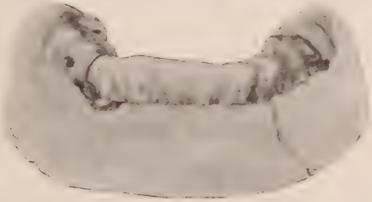
The next step is to construct a die and counter-die, over which you may sledge a metal splint, after the idea of Heath, of aluminum or gold, that shall cover about one-half of the crown surface of all the teeth. Now, since this metal splint was constructed from a model with the parts in their normal position, we feel safe in predicting that if we can secure the teeth in our splint from six to eight weeks, and if union has taken place, a normal occlusion will be the result. A sufficiently permanent fixative of the splint can be depended upon if the following plan be pursued: Place a rubber dam over the crowns of all the teeth. Pass a German silver wire, No. 26 to 30, around a tooth in each fragment, twist it tight around the necks of said teeth and leave the free ends extending lingually. Pass another wire around the same tooth, and have the ends extend buccally, and repeat this on all the teeth you find a wire extending lingually. Moisten the inner surface of the splint and the dried crowns of the teeth with the liquid that you use in mixing the cement. Force the splint, which has been filled with soft cement, firmly in place, taking due care that you have the fragments in their proper position. Next twist the free ends of the wires that pass lingually and buccally from around the tooth nearest the line of fracture upon the long fragment. You permanently fix the long fragment first, because the short one will be held in position as a result of the normal action of the muscles attached to the part.

The one wire employed on the short fragment should be placed around the neck of the posterior tooth in the part. Keep the rubber dam in position until the cement has set, and the resulting work is well represented in slide No. 4.

This mode of treatment, as you can readily see, allows unrestricted mobility of the jaw, does not keep the patient upon liquid diet and gives an opportunity for a more satisfactory condition of the oral cavity; nor does it interfere with speech, all of which are highly appreciated by the patient. This, in my mind, is the ideal method to pursue in the treatment of the forms of fracture where the surrounding conditions are as we have cited them.

The third classification made with reference to the form of treatment that is indicated is as follows: A fracture in the body that has been of long standing and union has not taken place, or a comminuted fracture, or one where we find no teeth or an insufficient number to warrant the employment of the wire method, the inter-dental or the metal splint procedure, the fixation of this fracture can most satisfactorily be brought about by wiring the ends of said fragments together with silver wire. After a general anesthetic has been administered, reflect the soft tissue from over the line of accident, remove any carious bone that may be present; next drill two holes about one-half inch from the end of each fragment, placing the superior one at a point where it will not penetrate a root. In placing the wires in position, pass the first one from the superior opening in the short fragment to the inferior opening in the long fragment. This is done that we may best combat the normal tendency of displacement that is now present and that is subsequently to be exerted in the part. The placing of the second wire through the other opening and securing coaption of the fragments by twisting the ends of these wires on the buccal surface

FIG. 4.

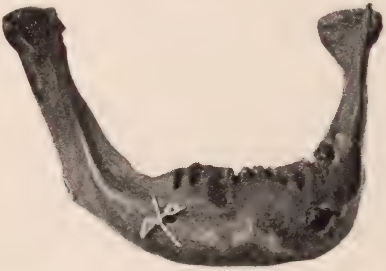


completes the operation upon the bone proper. If the line of fracture has been anterior to the first molar, the described operation should be performed within the mouth; but in operating posterior to this position and external incision along the shadow line beneath the body of the bone is advisable and at times imperative.

The ends of the silver wire are cut off, turned upon themselves and gutta percha molded about their ends to prevent unnecessary irritation.

The wires are left in from eight to ten weeks, and for all time if they cause no irritation. However, as a rule you may expect to remove them before the suppuration entirely ceases.

FIG. 5.



Slide No. 5 shows the wires in their proper position if the lines of fracture should be at the mental foramen.

In closing I desire to enter a protest against the employment or recommendation of the use of any form of bandage that is applied singly about the head and chin for the treatment of a fracture of this bone, for I believe the best results can only be secured by the use of those appliances that are placed upon the teeth or that are passed through the substances of the bone.

In this paper your essayist has considered only the most frequent forms of fractures of this bone, with a brief outline for their treatment, but in a subsequent article I will deal in detail with this subject.

THE ETHICS OF CLINICAL CONSULTATION.*

BY W. A. JOHNSTON, M.D., D. D. S., PEORIA, ILL.

Ethics in dentistry seems to be a series of don'ts—don't disparage your fellow practitioner, don't criticise his work to patients, don't advertise yourself at the expense of another, don't do this and don't do that.

The reason that so many of us shun consultation in our practice is because we are afraid the other fellow will forget some of his don'ts. Is it not so?

Are there not many cases which arise where, if we could ask advice without lowering ourselves in the patient's estimation, we would gladly do so? Wouldn't we be glad to have Jones' or Smith's opinion of the advisability of a certain operation if we were sure Jones or Smith wouldn't spoil it all by the way in which he gave his advice? If we could get on speaking terms with other dentists over our work I think it would be a good thing for ourselves, the other dentists, and the patient.

We all feel the need of counsel in these matters, and no more need be said about that part of the subject. The question is, How are we to arrange matters so that in doubtful cases we can get the opinion of someone else without the risk of having that someone else steal our patient?

In the ordinary affairs of daily practice I would not think it necessary or advisable to exhibit a patient's mouth to another dentist; and I deeply deplore the practice of some men who will enter the operating room of another dentist unasked, step up to the chair and scrutinize the operation, whatever it is.

The condition of a patient's mouth is a sacred trust between patient and operator, and a man has no business to speak of the dental secrets which come to him in the course of his daily routine. Much less right has he to invite promiscuously Tom, Dick and Harry to witness what is possibly a tender subject without first gaining the patient's consent. On the other hand it is often the part of wisdom to request the patient to allow another dentist to be called in to examine the case.

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* Read before the First District Dental Society of Illinois.

Patients are sometimes unreasonable and expect too much of mortal man. When a patient asks the dentist to do an impossible thing and will not be satisfied unless he attempts it, the advice and counsel of a brother dentist will sometimes either induce the patient to forego the demand or, in case of failure, to assume the responsibility. A case in point: A few months ago a prominent lady in our village applied to a dentist to rearrange the position of the incisors on a Watt's metal full lower plate while she waited. He was unable alone to make her understand that it was impossible. She took the ground that as he had made the plate originally he could surely change it to that slight extent.

In despair he sent her to me for my opinion. As I told her the same story that he did, she believed me. Seeing the dentist the next day, I suggested that by grinding the incisal edges of the offending incisors he might help matters somewhat. He followed my advice, satisfied the patient and retained her on his list, much to his and her own surprise.

In a short time this same dentist had the opportunity to return the favor. I had a very unusual case, which had been examined by several, at least seven, prominent men in large cities, the lady being quite a traveler. One and all had either advised the extraction of four upper incisors or refused to touch the case at all. The lady was desperate when she applied to me, and when I offered to undertake to save her teeth she was somewhat skeptical.

Before beginning the operation I called in my friend, explained the case, pointed out my proposed line of treatment and asked his candid opinion. After a careful examination the doctor said, "I think you are right about it," and, turning to the lady, said, "Madam, I think that operation will be successful; it is worth trying, and if any one can do it Dr. Johnston can." The lady was delighted to find two dentists who agreed about anything, and consented to the operation, which was successful beyond my own expectations.

It is an easy matter to get a patient, no matter how secretive she is—it is always a she—to consent to an examination by a stranger if you can convice her that you are seeking her own good entirely; and, gentlemen, this should be our highest aim, first, last and all the time.

Then, having the patient's consent, the interview with the consultant can easily be arranged. Where two dentists are located near each other and are on very good terms it is not always necessary to make a very formal proceeding of the consultation. Just run in, in a friendly way, and ask Dr. Bob or Bill if he can drop in for a minute tomorrow at 5 o'clock to see a case, or what time you can bring in a patient to show him, and the deed is done. Make the arrangement with the patient so as to conflict as little as possible with the consultant's other appointments and impress upon the patient the necessity of promptness.

When called to see another man's patient the utmost care should be used to inspire the confidence of the patient in her dentist, even if your opinion differs from his.

The story is told of an eminent physician who was called to see a sick woman in consultation with a young man of very limited experience but anxious to do right. After careful examination of progress of the case he discovered that the younger man was giving a medicine which was contra-indicated, and the hour had arrived for the next dose. Without a sign on his face to indicate that he had anything but the utmost confidence in the remedy prescribed, he administered the dose with his own hands, assured the patient that he was positive Dr. Blank's treatment was the best that could be devised and that she would pull through nicely. On leaving the sick room the older man pointed out to the tyro the mistake he had made in the treatment and suggested the proper changes to be made. "But," said the younger man, "you gave a dose of that medicine yourself." "Yes, I know I did, because one extra dose would do the patient less harm than to have her lose confidence in you."

In this lies the whole secret, to my mind, of the ethics of consultation. An honest difference of opinion in the treatment of a given case is perfectly proper, but even if convinced that the other fellow is making an egregious error do not tell him so before the patient. Suggest this or that. "How would this do? Have you ever tried so and so in such cases? I have had good results with this, that or the other," but never "You must do this," or "You can't do that." You don't know what the other fellow can do. He may surprise you some day.

The question of compensation is one which naturally arises. It seems to me that where two men are neighborly and call upon each other frequently there need not always be a grab for the patient's pocketbook. A friendly exchange of professional courtesy ought not to be made an excuse for robbing the unsuspecting public, but where a difficult case presents itself and the patient will be greatly benefited by consultation, or where a doubt is raised by the patient and desire for consultation expressed, here a fee is perfectly proper.

I would lay it down as a rule, in my own practice at least, that where I am to gain the advantage no extra charge is made, but if it is a distinct gain to the patient or by his request that the consultation is arranged he is expected to pay for it.

In such a case it is proper to tell the patient in advance that Dr. Blank's charges for such a service will be so much, and if inconvenient to give it to him at the time you will attend to it and add that amount to your bill. Dr. Blank should not be required to send in a bill for services rendered to your patients.

I was once sent for on Sunday and made a trip of four miles to help a man out of difficulty, and it was necessary for me to tie an artery which was beyond his skill. Four months afterward the doctor met me and asked if I "had got anything out of that case." On my saying that I had not sent a bill, he told me that he had collected his bill all right and the family had left town. Two weeks later I was sent for again by the same doctor, but was too busy to go.

An application of the Golden Rule will solve many a problem which may arise in connection with clinical consultation. What constitutes fair treatment is sometimes governed by circumstances. I was once approached, when fresh from college, by an old practitioner who was in sore trouble. He was willing to acknowledge to me that a case of necrosis of the upper jaw was not only the result of his own carelessness, but it was also beyond his power to treat successfully. The old gentleman had few friends in the profession and was such a crabbed old knocker that every dentist in town was eager to get a crack at him in return, and he knew it. The victim was one of his most valued patients, with a large and influential following. To have this patient get away and fall into the hands of another dentist meant a great loss, both of money and reputation, to the old man, who could ill afford to lose either.

I offered to see the case with him, but he said he dared not let the family know that he was in need of help and that he had asked me to see it. So I arranged to come to his office at the proper time to borrow a flask, and he was to call me in as a casual visitor interested in unusual cases.

I was on hand at the appointed time to borrow that which I did not need, and while waiting for the assistant to get it, the doctor, in a fatherly way, suggested that if I would step to the chair he would show me a difficult case, and I might learn something from an old man that I might never find out in college.

I was duly ignorant and the farce went on. Half an hour afterward the doctor was in my office in eager consultation. A week later I returned the borrowed flask, and the doctor "happened" to have the same party in the chair. I was called to notice the improvement and was duly impressed.

Strange to say, the case got entirely well between us; the patient never suspected that I had anything to do with it, but from being a knocker the old gentleman became the best friend I had in the profession and helped me to many a bit of practical information which I would never have learned in any college.

Under ordinary circumstances I should refuse to enter a case in this way, but these were not ordinary circumstances. I may need just such help sometime when I grow old.

But lest I grow wearisome to you, and you be tempted to consult your watches, I close with this old, yet ever new, quotation:

"* * * to thine own self be true,
And it must follow as the night the day
Thou canst not then be false to any man."

Let us be honest with ourselves and the other fellow, and the nicer questions of ethics will take care of themselves.

BRIDGE WORK.*

BY L. L. DAVIS, D. D. S., CHICAGO, ILL.

Ever since the introduction of bridge work as a substitute for the old-fashioned partial rubber or metal plate, changes of various nature have been suggested and applied to make such dentures as nearly permanent as possible. The profession in the first enthusiasm, as in many other lines, ran to the extreme and inserted bridge work under conditions that could but result in failure, and in consequence of such failures bright minds advanced new ideas for retention, support, and the lessening of strain upon the teeth or roots concerned in holding of the appliance. Today the insertion of a fixed—I use the term as compared to a removable—bridge of more than four teeth is not warranted by the lesson we have learned regarding the permanency of such operations, and while many expensive pieces may still be worn by poor, suffering human beings, the consensus of opinion does not indicate such operations, even with the added support of saddle for the ridge and an elaborate system of truss work to insure rigidity. Phophylaxis must have an influence in all our operations, and I have yet to see the fixed saddle bridge, after being worn a short time, in a perfectly sanitary condition, even in the mouths of those whose care of the teeth is all that can be desired. The absorption of the alveolus under the saddle is one of the prime causes of the failure of this kind of work. Another, the liability of the mucous membrane to inflammatory conditions from associated alimentary disturbances. These two causes alone and their sequelæ condemn the fixed saddle bridge—be it of small dimension or great extent.

In regard to the anchorage of the fixed bridge for anterior teeth there have been many good ideas advanced for the insertion of artistic work, none more so than the porcelain-faced crown where it is absolutely necessary to amputate the tooth crown for an abutment; but where the teeth to be used for abutments are in perfect condition I consider it a crime to destroy the pulps and cut off and crown them when other methods more conservative and as lasting may be pursued. At the same time I regret to see that today the gold band seems to hold its sway among a portion of our profession as a means of retention of a denture of one or more anterior teeth. Our mission is to disguise the ravages of disease or the accidental loss of an organ rather than to advertise it to the world at large, and therefore the gold banded central, lateral, cuspid, and even bicuspid, should be one of the things of the past. The ideal method of retention in such cases as do not require the amputation of tooth crown I regard to be the "U" staple and gold backing. The Carmichael system of adapting the gold plate to the tooth prepared with U-shaped groove and afterward reinforced is good, but the former method I consider to have greater strength and does not involve the loss of tooth tissue that might somewhat disfigure a shapely tooth. This method has been in practical use by me for a number of years and is demonstrating its value more and more every day. At the same time, I must not pass this part of my subject without mentioning another method pursued—and also suggested to me by Dr. Wassall—of shaping clasp metal to a portion of back and sides of teeth and soldering 22-carat gold to remaining lingual aspect of the tooth, extending slightly over the cutting edge to prevent stress of mastication from forcing the attachments into the gum tissue. I have several cases of this kind that seem to be in good condition after twelve or fifteen years' service.

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* Read before the Odontological Society of Chicago.

For the small bridge for posterior teeth the well known shell crown—with porcelain facing for anterior support—can not be excelled. We now come to a class of cases that include the loss of a considerable number of teeth within a given space, or with only one intervening support, or, still more complicated, the loss of all the posterior teeth.

It is here we have met with the greatest number of failures and therefore the greater the need of improvement. You have all, doubtless, grieved over the broken sections, bent or broken posts, strained bands or loosened and displaced roots, the last mentioned factor being a frequent one in these cases, but, worst of all, the fracture of porcelain and consequent disintegration of what you had considered "a thing of beauty and a joy forever." I have been obliged within the last month to acknowledge the failure of what I considered three years ago the most artistic and satisfactory bridge

I had ever inserted (an all porcelain saddle bridge, extending from left superior second molar to right cuspid with an intervening left bicuspid root to add to its support), and it is partly on account of this failure that I inflict you with this subject.

More and more do I wish to emphasize the absolute unreliability of any fixed bridge of more than four teeth, and in some cases even four are too many. We must, therefore, look for some other method of attachment if we do not hark back at once to plate work. Our only hope is in the removable bridge. This is really a reversion to earlier practice, for when the discussion of bridge work pro and con was at the same phase that inlay work now stands, I was among those who doubted its qualifications as a fixture within the oral cavity and made only those that could be removed and cleansed. The first of these (and I here present one of them) was of rubber, with metal ring encircling a gold crown at the back and with clasp metal arms in front. Recently I saw two of these pieces in the same mouth that have been in use fourteen years in excellent condition and doing service. The fact that this method could be used only in the lower jaw somewhat limited its field of service.

Another method was to make double gold caps for roots, one with flat top and perfectly straight sides, over which was telescoped another cap with cusps and to which was soldered the intervening dummies. This was not a success by reason of the strain upon the bridge and consequent displacement of the abutments. Several methods of securing removable dentures with posts and tubes, or solid dove-tailed wedges and grooves have been tried, but with no definite results that would warrant a continuance of either method.

Within the last few years a method of attachment has been introduced to the profession that seems to grow upon one the more one studies its beauties. By this system it is possible to perform operations that before its inception were not thought possible. To be able to extend a denture backward where there were no teeth or roots for a supporting abutment was only possible with a plate. Now, by the Griswold system, there is hardly any condition of the oral cavity, except an edentulous one, that does not promise good results from its use. You are all familiar with its form of attachment, therefore it is not necessary for me to describe it. I do not consider it *"the only way,"* but I do say that it has every point in its favor, looked at from whatever side you will. It is artistic in appearance—in fact, the most beautiful effects in porcelain bridge work can be accomplished only by this method, because it has the natural support of gum and alveolus without the strain upon its abutments which so often is the cause of failure. It approaches most nearly the ideal from a sanitary aspect, its easy removal aiding the cleaning of the teeth. By it, large restorations of lost alveolar tissue can be made, a thing impossible with any other method of bridge work. The entire dental arch may be filled by a single bridge with reasonable assurance of success, and in this class of cases it *is "the only way."* The more it is used the more varied the number of conditions it seems to fill, and to those persons who, by reason of the loss of all or nearly all of posterior teeth, have been compelled to forego the comforts of bridge work and wear a plate covering the entire hard palate, it is the greatest boon dentistry can offer.

I believe the time is not far distant when fixed bridge work will be limited to certain conditions and removable bridge work will occupy the prominent position it deserves.

DENTISTRY IN GIBRALTER AND MALTA.

BY HORACE WYNDHAM.

The practice of dentistry in both Gibralter and Malta has so nany adherents that the stranger may well be pardoned for thinking hat they must at times be reduced to pulling out one another's eeth for a livelihood. Despite the number of practitioners, how- ver, it is evident that there are not too many of them, for they all ontrive to flourish exceedingly. Indeed, it is extremely rare for a lentist in either place to come to grief financially or to be obliged to eek the aid of the bankruptcy court. For this desirable state of ffairs several things are responsible. Perhaps the principal one mong them is that the average Spaniard and Italian systematically eglects to look after his teeth; another contributory factor is that he usual diet of these people is of a nature to render frequent visits the dentist.

Gibralter, with its large English garrison, furnishes the local dentists with a good many soldier patients. The military population of the fortress is somewhere about six thousand. Although the British troops have doctors of their own provided for them, and whose services indeed they are required by regulation to invoke when necessary, they much prefer to consult a civilian practitioner. Of course, they have to pay for such aid. This, when the benefit they receive from doing so is taken into consideration, they do not mind. The fact is, the average medical officer in the English army knows scarcely anything about dentistry. His training therein is of a most elementary description, and, as a general rule, he is incapable of any higher flights than extracting a loose tooth. Fortunately, he is not above admitting his incapacity, and when a case demanding special treatment is presented to him he candidly tells the sufferer that the best thing he can do is to place himself in the hands of a private practitioner. As the British Government distinctly promises every recruit on enlistment "free medical attendance," this neglect to provide properly qualified dentists is a scandal. During the recent Boer war in South Africa it reached such a pitch that in the latter stages

Gibraltar, Showing the Town.

of the campaign graduates had to be sent out from the London Dental Hospital. The experiment was found to answer so well that, on the cessation of hostilities, some of them received permanent appointments at Aldershot and other big garrison towns in the United Kingdom. Abroad, however, this existence of civil practitioners is not as yet officially recognized, and the soldier afflicted with toothache has to submit himself to the tender mercies of a military surgeon, unless he is prepared to consult a civilian dentist at his own expense.

The majority of the Gibralter practitioners are Spanish by birth. Several British and American surgeons, however, also carry on business in the town. It is these latter who cater for the better class of residents, as it is felt that more confidence can be placed in their skill. The letters, too, that they are able to place after their names (such as L. D. C. or L. C. D. S.) in token of their professional qualifications go a long way in securing them patients. In evidence of this a native dentist who was not so qualified once boldly exhibited in his window the legend, "Failed, L. D. S." and speedily attracted numerous clients from among the Spanish element in the town.

Before a dentist of any nationality can establish himself in Gibralter he has to get permission from the military authorities. Such permission is not granted as a matter of course, for the applicant is required to furnish references as to his character and general bonafides. Unless these are found to be in thorough order the request is certain to be refused. One reason for this is that the fortress is so crowded that the authorities are obliged to keep the population within certain limits. All the available land is wanted for military purposes and the erection of additional dwelling houses is accordingly quite out of the question. On this account several of the Gibralter dentists rent business premises only in the town and live outside the gates that separate the fortress from Spain. Although it is very much pleasanter to adopt this plan and reside in San Roque, Campamento, or Algeciras, or anywhere else on the mainland, and thereby avoid the heat and noise of the overcrowded town, it certainly has its drawbacks. The principal among these is that residence outside the boundaries makes night work impossible, as the fortress gates are locked from sunset to sunrise and may not be opened under any circumstances during the interval. If attacks of toothache could be guaranteed not to manifest themselves between these hours, this regulation as to closing would not matter. Unfortunately, no such guarantee is possible.

The business premises of such dentists as live in Gibralter are generally to be found in the Calle Real. This is one of the principal streets and is within a few yards of the Waterport Harbor, the Casemates Barracks, Government House (otherwise known as the Convent) and the Cathedral. From an external point of view the establishments are much the same as those occupied by dentists in New York or London. Thus, on the door is a brass plate, inscribed with the occupant's name and qualifications, and on either side of the entrance are glass cases filled with artificial teeth. These always form a great attraction to passers by, and are usually surrounded by a small crowd, the majority of whom firmly believe that the molars thus exhibited are ones that have been extracted from patients. The consulting rooms are generally situated on the ground floor and are provided with all the familiar features of such apartments, including month old copies of alleged comic journals. In some cases the windows are plastered with testimonials from grateful sufferers. As the majority of these are written in Spanish translations are appended for the benefit of English patients.

Speaking generally, the fees charged by Gibralter dentists are very moderate. Simple extractions are performed for as little as one peseta (about twenty cents) while an artificial tooth is supplied for a dollar. Of course, gold mounting is not included at this price, nor are anæsthetics administered without an extra charge. The scale is a carefully graduated one and varies with the rank of the sufferers. English patients, by the way, are charged a good deal more than Spanish ones. To make up for this they are treated with special deference. Indeed, it is not at all unusual when one of these —especially if he be a soldier—comes along for a native to be unceremoniously left to nurse his jaw in the middle of an operation while the new arrival is being attended to.

Dentists established in Malta pursue their calling under very similar conditions to those prevailing in Gibralter. Owing to the greater number of local practitioners, however, they have more competition to contend against. Still, there is plenty of employment for them all.

The leading dentists in Malta are to be found in Valletta, the capital of the island, and have their premises for the most part in the Strada Reale. This is a handsome and well laid out thoroughfare. It runs from the districts of Floriana to St. Elmo, and is flanked on either side by many important public buildings. Among these may be mentioned the Governor's Palace, St. John's Cathedral and the Opera House. Other dentists live in the suburbs of Cottonera and Sliema, while others again are established at Citta Vecchia and in the numerous villages along the coast. These last, however, depend almost entirely on the local inhabitants for their clientele and seldom pay professional visits to Valletta. The chief reason for this is that they are only familiar with the Maltese *patois* that is spoken by the peasants and are thus unable to converse with the educated classes of the capital, all of whom speak either Italian or English. Maltese, by the way, is a dialect that sounds to foreign ears like a mixture of Welsh and Chinese. In comparison with it Choctaw is a sweet harmony.

The Strade Reale, Valletta, Malta, Where the Leading Dentists Have Their Offices.

The suburb of Sliema forms the residential quarter of the leading members of society in Malta. It is on this account greatly favored by dentists, quite a number of whom are established within its boundaries. In their efforts to attract business some of these affix

The Strade San Lucia, Valletta, Malta, a Street Much Affected by Native Dentists.

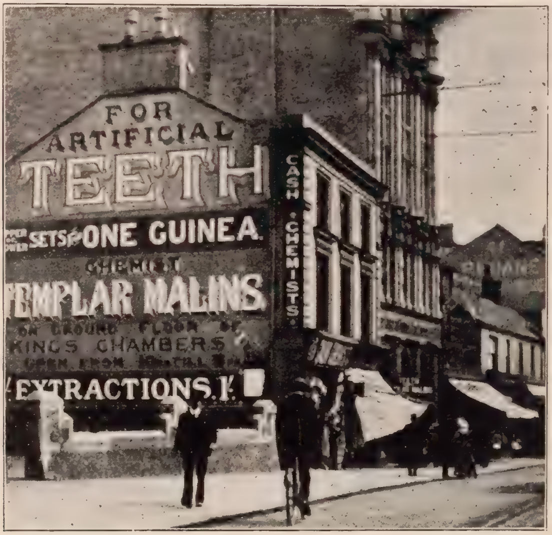
to their doors brass plates inscribed "Smart Set Dentist," or with the somewhat ambiguous announcements, "Special Treatments for English Ladies" and "Teeth Extracted Without Pains." Sliema, it may be mentioned, is separated from Valletta, as is also Cottonera, by a broad expanse of water. It is quite a common sight, accordingly, to see a Maltese dentist rowing across the harbor to visit a patient.

A good deal of dental treatment in Malta is undertaken by druggists, who apparently combine the two businesses with satisfaction, both to themselves and their clients. In the remote country districts the village dentist seems to be a veritable Jack-of-all-trades, for the writer remembers one in the hamlet of Imtarfa who advertised himself as accoucher, druggist, veterinary surgeon, piano tuner, and dentist. This Admirable Crichton was, as may be imagined, the pride of the whole community. It is noteworthy, however, that when any of his neighbors suffered from toothache they invariably journeyed to Valletta to be treated by a practitioner of less comprehensive talents.

The average native of Malta always thinks—where his teeth are concerned—with Shakespeare, that "it is better to endure the ills he has than to fly to others that he does not wot of." On this account he is much given, when afflicted with toothache, to practice a little amateur dentistry on himself. His methods are of a very rough and ready description and usually end in making the attack worse than ever. When at length he realizes that none of the quack nostrums he has experimented with, or the propitiation offerings he has made to the different saints in the Maltese calendar have any beneficial effect he screws up his courage and goes off to the local practitioner. Escorted by sympathizing friends and relatives, he is ushered into the consulting room. Directly he has opened his mouth for the necessary examination a cork is inserted between his jaws. A dozen willing hands seize his arms and legs and hold him down while the forceps are vigorously applied to the affected molar. As often as not, what with the noise and confusion, the wrong tooth is extracted at the first trial. In this event the operator generally pulls out a second free of charge. This leaves the patient completely satisfied, for to have two teeth pulled out for the price of one distinctly commends itself to the thrifty soul of a Maltese peasant.

After an operation all parties adjourn to the nearest public house, where copious draughts of *ambiet* are indulged in. This is a fiery liquid, which speedily reduces its imbibers to the last stage of drunkenness.

High-class work in Malta is performed on certain days in the week at the different hospitals in Valletta and elsewhere. One of the best of its kind is in the suburb of Floriana. The operators in this establishment are all highly trained men, and for the most part are graduates of the dental colleges of Rome and other Italian cities. Some of them hold London certificates as well.



A Dental Office in Malta.

The working hours of dentists in Malta vary with the season of the year. In winter business is conducted from about 10 a. m. to 7 p. m. During the summer months treatment may be obtained as early as 6:30 a. m., for from May to October everyone rises with the lark all over the island. To make up for this energy, however, business is everywhere suspended between the hours of 12 midday and 3 o'clock in the afternoon. This interval is in accordance with local customs devoted to the *siesta.* To mark its arrival the dentist pulls down his window blinds and sticks a card on the door, curtly inscribed "Too Hot." He then curls himself up on a sofa and blissfully snores away two or three hours. Nothing short of the crack of doom will make him stir until he has slumbered for the prescribed limit and patients may hammer angrily at his door until they are blue in the face. He considers that if people are thoughtless enough to have toothache at inconvenient hours they deserve to suffer for it.

SUB-MAXILLARY CELLULITIS.*

BY A. P. CONDON, M. D., D. D. S., OMAHA, NEB.

The subject of the paper that I wish to present to this Society is one upon which very little has been written; some text books only briefly describe this form of inflammation, while others do not mention it at all.

Sub-maxillary cellulitis, generally known as Ludwig's angina, is an acute phlegmonous inflammation occurring in the loose connective tissue of the sub-maxillary region, between the lower jaw and the hyoid bone. It differs in no way in its pathology from the other forms of cellulitis, such as that observed in the pelvis, in carbuncle, etc.

It may be caused by the different forms of pus micro-organisms, but it is the streptococcus or the bacillus of malignant œdema which is the usual cause, the latter producing the most malignant form.

The method of invasion of the tissues is usually through an infection atrium, but to state, as some authorities do, that it never occurs otherwise, seems to me irrational. There is no reason why a hematogenous infection can not arise here, just as it occurs in other parts of the body, such as in osteo-myelitis, the tubercular infections of bones and joints, and the idiopathic inflammations of the serous surfaces.

The disease may be secondary to injuries, operations, or infections in the mouth or pharynx, or may follow inflammations of some of the cervical glands. It has also been known to develop after fracture of the larynx and hyoid bone. The infection may extend from the ear along the digastric muscle to the sub-maxillary region. As a rule, however, it occurs through the mouth by way of the duct of the sub-maxillary gland or a carious tooth. The inflammatory process is beneath the deep cervical fassia, which prevents the involvement of the more superficial structures, and favors the extension of the inflammation to the glottis, which sometimes results in a fatal oedema glottidis. If this occurs a tracheotomy must be done to save the patient. The numerous veins and lymphatics in this region become the seat of inflammation, infective thrombi may be formed in the veins, which being carried into the general circulation, produce septicæmia and pyæmia. The infection may be so intense, especially if caused by the bacillus of malignant œdemia, as to produce gangrene of the tissues and a rapidly fatal toxæmia may follow.

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* Read before the Nebraska State Dental Society.

Sub-maxillary cellulitis occurs more often in debilitated individuals, during the convalescence from the infectious diseases and following operations which necessitate prolonged rest in bed.

The symptoms of a beginning of Ludwig's angina are frequently obscure. Owing to its depth from the surface, its separation from the skin and subcutaneous tissue by the deep cervical fassia, redness, heat and swelling may not be very evident. At a more advanced stage of the inflammation, the swelling increases and the skin becomes tense and brawny from the inflammatory œdema and it can not be moved over the parts beneath. The tongue is pushed up and there is difficulty in speaking and swallowing. The constitutional symptoms are always very marked. The attack is usually ushered in with a chill, the temperature ranges from 103 to 105 degrees, there is vomiting, diarrhœa, and sometimes delirium, or a typhoid state may supervene. In fact, all the symptoms of a violent septic condition.

The diagnosis of a sub-maxillary cellulitis is usually not difficult. This condition is not likely to be mistaken for a carbuncle, since a carbuncle comes on insidiously, is more localized and we have the subcutaneous tissues and skin especially affected, while in the cellulitis the deeper structures are involved and there is no evidence of the necrosed areas in the skin, which is a diagnostic point in carbuncle.

The simple abscesses occurring in this region would hardly be confounded with Ludwig's angina, as their onset is slow and there is not the marked general disturbances.

We treat a case of Ludwigs Angina just as we do a phlegmonous inflammation in any other part of the body. If the case is seen early and there are no marked general symptoms, keep the patient quiet, apply ice freely to the inflamed part, and give opium internally to relieve pain. If, however, the local and general symptoms do not abate, but progressively increase, the part must be incised and drained, whether pus has formed or not. We do not wait for the formation of pus in pelvic cellulitis, acute osteo-myelitis, or carbuncle, but when the symptoms point to a progressive septic condition, incise thoroughly, and thus relieve the tension, drain the septic focus and prevent the absorption of the bacteria and their toxines. It is a well established fact that the absorption of pus or inflammatory exudate is increased by pressure. When the tension is removed, absorption, to a great extent, subsides. Examples of this we observe every day after the draining of an acute septic focus in any part of the body, when the constitutional symptoms are seen to disappear.

In the most violent cases of septic infection we do not have the formation of pus, but in these cases the incision and drainage of the septic focus is indicated just as much and probably more so, than if we had suppuration.

To the maxim *"ubi pus ibi evacuo,"* another axiom as important may be added, when there is an infected focus, the absorption from which produces grave, general symptoms, that focus should be incised and drained if accessible, irrespective of the formation of pus.

To drain a case of sub-maxillary cellulitis, an incision should be made in the median line extending from the chin to the hyoid bone or transversely across the submental space. The incision should be made deeply in the inflamed area, and if there is necrosis the tissue should be curetted, irrigated, and a moist antiseptic dressing of bichloride of mercury, 1 to 3,000, or carbolic acid, 1 to 200, applied.

The general infection or intoxication must be combated and the patient's strength sustained. Alcohol, quinine and normal salt solution given per rectum is probably the best line of treatment. Digitalis and strychnine may be used as a heart stimulant. As a large number of these cases are caused by the streptococcus, the anti-streptococcic serum should be used where the general symptoms are severe.

Within the past few months I have seen three cases of Ludwig's angina; two of them being in consultation with dentists, and, I am glad to say, they had made the correct diagnosis.

A HALF BRIDGE IN HIGH HEAT PORCELAIN.*

BY WILLIAM A. SPRING, D. D. S., DRESDEN.

It is the tendency of all porcelain workers to obey the little motto that is often given a graduating glass, "Look up, not down"; in other words, as their experience increases, to gradually advance the fusing point of the porcelain they use in their work. Even my warm friend, Dr. Jenkins, the staunchest advocate of low fusing porcelain whom I know, has "perfected" his body several times by slightly raising the fusing point, and he comes to us now with a new body for crowns and bridges and continuous gum work, in which the fusing point is considerably higher. I am not surprised. It is the natural desire of all honest men and has been the constant cry of our august friend, Dr. Cunningham, to "Get up onto a higher plane." In my own work I have gradually gone higher until I believe I have reached the limit. I use for crowns and half bridges a porcelain which I have named Whiteley Special, because it is specially prepared for me by Mr. Whiteley, of the Dentists' Supply Company, of New York. It requires a heat as near 3000° F. as it is possible to calculate those things, but is more translucent and to my mind more natural than any of the lower fusing bodies. Many of the bodies fusing at a lower temperature than this, and some even which require more than 2,000° F. have an opaque look, which renders them conspicuous even when the color is accurate. It is made up in bodies and enamels, the latter so-called because of its beautiful translucency, the fusing point of each being practically the same.

As I have already mentioned to this society, I have discarded the use of facings and carve the entire crown. I have found this porcelain exceedingly useful in making half bridges, a crown with an extra crown or dummy attached, and the object of this paper is to describe my method. Imagine an upper first bicuspid gone, and the root of the second in healthy, firm condition. I prepare the root as it is customary for a Richmond crown, make a cap of platinum, 28 American gauge, and then attach to this cap a dowel.

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* Read before the American Dental Society of Europe, April, 1904.

shaped much like a boomerang, except that the part penetrating the root is shaped like an obelisk.

This dowel is quickly pounded into shape out of a piece of square iridio-platinum, No. 14 American gauge. The bend should occur at a point to leave considerable space between what becomes a horizontal bar, and the occluding lower teeth. The bar should not be long enough to reach the cuspid. The extra crown or dummy should be a half crown for mechanical reasons. Care should be exercised to so construct the bar that when the crowns are carved upon it, it shall be in the middle of the porcelain. As soon as this structure is completed a bite impression is taken with the cap in position. As soon as we have our models on the articulator with the frame in place, we are nearly ready to begin to model and carve, though a few suggestions are of value here. The surface of the cuspid and molar should be slightly scraped, and the part of gum where the dummy is to rest should be deeply scraped, a thin coat of sandarach should then be put on that part of the model near the work, and also upon the occluding surfaces of the lower teeth, so that the moisture shall not be absorbed from the work while carving and modeling. The porcelain is mixed with pure water and a very little powdered tragacanth. For the first or biscuit bake the teeth are carved very roughly, almost entirely of body, though the occluding surface should be done in enamel. If one carves nearly to occlusion, the shrinkage of the biscuit bake will leave just enough room for the second carving. Now one carves to correct occlusion, for the amount of new porcelain at this point is so little that the shrinkage will not prevent an accurate piece of work. It is needless to say that the dummy should be so constructed that the lower teeth shall not quite meet it in masticating for the safety of the root. In conclusion, allow me to say to those who have never carved porcelain that the work is not difficult. It is much easier to carve than wax. The knowledge of form is common to every dentist, and the time has come when the baking of porcelain is as familiar in most practices as the condensing of a gold filling.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held March 1, 1904, with the President, Dr. Donald M. Gallie, in the chair.

The subject for discussion was a symposium on "Cases of Crown and Bridgework Presenting Unusual Difficulties, With Their Solution; Cases Calling for Artificial Dentures Presenting Unusual Difficulties, With Their Solution."

No formal paper was presented. The discussion was opened by

Dr. W. H. Taggart, who said:

The program states that the discussion is to be on difficult cases of bridgework. This is a proposition that I can hardly recognize. There is a difference in the length of time it may take to make two different bridges. I do not recognize the mechanical difficulties as being very great; in other words, the dentist is too apt to try and make his crown and bridgework, bridgework especially, to come in competition with rubber plate work, and in this way the difference between the price he gets for rubber plate work and bridgework is so little that he feels he can not devote the necessary amount of time to the bridgework as he could do if the question of dollars and cents did not enter into it. That factor should be eliminated. The dentist should either not do bridgework at all, or else he should get enough compensation to devote the necessary length of time to make each case simple, so that there will be no difficult cases in bridgework. As a rule, a mouth would be better off if the dentist made a rubber plate, instead of trying to make a bridge in a limited time. In the work I see coming to me from other hands every once in a while I notice some earmarks of a high grade of ability on a certain piece of bridgework that is poor in the finished results, but there are earmarks, nevertheless, which indicate that the man had ability. He failed to exercise the ability he had by trying to do the work in too limited a time; in other words, the underlying principles were not attended to detail by detail, and if a man is not willing to devote sufficient time to prepare his abutments properly, there is no reason why he should not put in a rubber plate instead, as the patient's mouth would be better with it. Oftentimes we see a mouth in which there has been a piece of bridgework that has stood for ten or twelve years, and while it is a poor piece of work from an artistic standpoint, yet the gums have remained healthy; the bridge has been serviceable, and it seems, therefore, a temptation to do bridgework in that way, but the average mouth will not stand that kind of abuse.

Let us take an extreme case of a bridge, say of four abutments, a full upper bridge. Most dentists would make this by trying to solder it all at one time. There is enough warpage there to make a failure of that piece of bridgework. This bridgework should be done in sections. The right side, for instance, should be made as one piece extending from the third molar to the cuspid, and adjusted to its place, and all soldering that is to be done should be done on the four or five teeth intervening, this to be the finished piece. The bridge on the side is to be a finished piece; the four front teeth should be finished, then put in the mouth and worn for a few hours before an impression is taken. I say worn for a few hours because there is hardly a bridge of four or five teeth, with all of its abutments, but what has enough warpage in it to make it difficult in going to place, unless it has been worn long enough to make the roots adjust themselves to the little warpage that has taken place in the crown. By wearing it a few hours and having the patient see that it is thoroughly pushed to its place, the roots are compelled to take the direction that the crowns want them to. After that is done, the impression should be taken of one side, that taken off and soldered. Each time you do this it allows you to diagnose the case by exclusion as we do in surgery. In other words, if, when these two pieces are soldered together, and you put it to its place, anything goes wrong, it is the place just soldered that is wrong probably, and you can take it apart and readjust it again. If you have four or six different places to solder when you put the bridge to its seat you have no recourse, as you do not know which place it is that prevents it from going to place. It is attention to details which makes it possible for one to make all kinds of bridgework comparatively simple.

Of course, the more complicated a piece of bridgework may be, the greater the necessity for the destruction of the pulps of teeth. I can hardly imagine cases that are suited for bridgework without destroying pulps. I apprehend that this will bring out some differences of opinion in the discussion, and I shall depend very largely on the discussion to bring out many points that I may fail to mention. However, I feel that a bridge can not be properly constructed and adapted to its place unless the pulps of those teeth are dead. I do not think it is possible for the average patient to stand it, or for the average dentist to grind a live tooth in such a shape that the crowns will go on to the abutments, properly aligned. If he does succeed in grinding the tooth and getting the bridge to place, the shock of taking off the enamel covering and putting gold in contact with sensitive dentine—will destroy the pulp in time, and one had better destroy the pulp in the beginning and cut side grooves to get the bridge to place, because the more complicated the case the more cutting he will have to do. In teeth that slant and tip toward each other, it would be impossible to make a bridge properly adapted to that case without destroying the pulp and cutting the tooth off, because so much of the molar or bicuspid would have to be trimmed.

Within the last three years I have been making a style of bridge for what might be called complicated cases, that is, where the molars would lean toward each other, or the bicuspids, or where the second permanent molar tilted over, so that only the backs of the cusps were striking on the opposing jaw. In these cases it is difficult to make a bridge because so much of the teeth had to be ground away, and about three years ago I began fastening this end of the bridge with an inlay.

As to the question of whether a saddle should be used instead of self-cleansing spaces, there is great difference of opinion. Of late years I have not made any bridge with self-cleansing spaces. They have all been of the saddle nature. Patients who have had bridges constructed both ways say that the one with the saddle is much more comfortable, if the saddle is properly constructed, and that means a great deal. The saddle rests on tissue of varying density. In some places, where it is near the bone, there is but little live tissue covering the bone, and that part will not stand as much pressure as where the tissues are more yielding. After taking care with the impression, making the dies and counter-dies, and getting it to fit as well as you can, the saddle should be carried to the mouth and reswaged to the tissues against which it is to lie. If you have No. 29 gauge platinum for your saddle (and it need be constructed with nothing else), the platinum should be placed against the gum tissue, and this can be burnished so that the pressure will be equal all along the underlying tissues. In some places the tissue can be condensed by the saddle to the extent of 1/16 of an inch or more.

The saddle bridges I have had occasion to remove, when properly constructed, have been much cleaner than pieces of bridgework that had self-cleansing spaces, because the latter are a delusion and a snare to my mind. Of course, if the saddle is not properly constructed, and details are not attended to, as I have suggested, what is known as a self-cleansing space will do less harm than a poorly constructed saddle. But I feel that if any odor comes from under the saddle, the gum is inflamed along the margins of it. If there is no odor, no inflammation along the margin, I can not see how any harm can come, whatever may be under there. When these saddle bridges have been taken off, if properly constructed, they have been clean; not clean in the sense the face of a tooth would be clean, but there would be nothing more than a little scum, possibly a little epithelium, or something of that kind present, but not food, and not emitting any odor, not as much as one would get in passing a piece of floss silk between teeth that were equally well taken care of. Take mouths that are fairly well cared for, and if you go into out-of-the-way places with floss silk, you will get odors.

I would like to draw attention to one feature in connection with crown work. Many dentists, when they have a root decayed well under the margin of the gum, prepare the cavity and fill it with amalgam up to the gum line, and then, after that is done, they will make the bands to fit. I think that is all wrong. The weak point is the amalgam filling. The band can be fitted to place by making it wide enough, adjusting it and marking it inside, and trimming off the places that prevent it from following down along the side.

In the case of a tooth where an open faced band was indicated, where you do not want to put on a gold shell crown, I have devitalized such a tooth in the past, but within the last twelve or fourteen years I have made use of the Carmichael system. At that time I put on one or two, and while they were somewhat difficult to make, they were satisfactory, and since Dr. Carmichael has presented his system to the profession in renewed form within the last few years, I have used the Carmichael attachment for the front abutment, say the cuspid. To my mind, it is the strongest attachment that can be made on a tooth. It is far ahead of the shell crown (I am speaking now of the strength alone), and it can be done without gold showing in front at all; you do not endanger the pulp of the tooth, and the parts that have to be fitted are all accessible.

Dr. J. N. Crouse:

I would like to ask whether you are a licensee of Carmichael's?

Dr. Taggart:

I got a diploma from Dr. Carmichael; two or three years ago he sent some circular letters to dentists, asking them to come to Milwaukee to see a demonstration of his system. His idea was to get the dentists interested in it. He has not been to Chicago for this purpose to my knowledge. He told me that he had sent sixty-five invitations, and there were only two which were accepted. Dr. McCandless and myself went up to Milwaukee to receive instruction in regard to the Carmichael system. He showed me a number of cases he had at that time in Milwaukee. In spite of the fact that some of them were crude in workmanship, the attachments were strong and firm; there was no tendency for decay to take place about them that there would be in the case of open faced or shell crowns. The attachments were all in good working order. He made special arrangements for patients to come to the office, and he had possibly twenty of them there, with all classes of bridgework constructed with these abutments or attachments. I thought it was good enough for one to take out his license.

There are a great many dentists who are using the Carmichael system, and possibly legally they can use it. But I can not see why a man of Dr. Carmichael's inventive ability, who sits up at night and works hard, should be denied the privilege of making profit from it any more than the man who writes a book on prosthetic or mechanical dentistry, and who copyrights it, and then in open meeting denies a man with mechanical ability the right to protect himself. It takes as much ingenuity to figure out one of these mechanical appliances or attachments as it does to write any book that was ever written. There are dentists who are making money from their books, but where are the dentists who are making money from their brains used in a mechanical way? The men who decry these things, who can not invent these appliances or attachments, are ever ready to deny a man the right to make something out of them.

Dr. E. J. Perry:

When Dr. Gilmer asked me to say something on the subject of prosthesis, he did it over the 'phone. I love him so much, and this feeling of personal and professional regard makes me feel under perpetual obligation to him, so I agreed. Another factor was my obligation to this Society. I feel that any one of us should be willing to give out whatever he can; however unimportant it may appear it will surely fit into someone's experience, and be a help and thus the object of our organization is accomplished.

Difficult cases in prosthesis may be divided into two classes: those which inhere in the case itself, and those which inhere in the patient. These latter may be the patient's purse, his ignorance, or any and all those difficulties not inherent in the case itself. As to the treatment of these latter difficulties, the dentist's skill in controlling his patient is the principal factor. His knowledge of human nature, his mental equipoise, his rectitude of purpose, his candor and honesty are prime factors. It is not my purpose to deal with these difficulties. But when difficulties inhere in the case and the patient too, the dentist is, to use the vernacular of the street, "up against it." And a little age, reputation, or experience is handy to have to fall back on. Difficult cases in prosthesis are the rule, not the exception. Aside from the classification spoken of, they are not susceptible of being considered except as individual cases. Let me relate my experience with a recent case: Male, fifty-eight years. Tall, angular type. Deep arch. Nervous temperament. Teeth lost by pyorrhea alveolaris. Mouth smooth, and to all appearances, an easy case, barring very poor molar surface and a loose bridge case of six oral teeth below. Difficulties developed after case was inserted. Plate adhered well all first day. Case looked to be a fine success. Next day no adhesion till after worn for several hours. Made this case over four times, and succeeded. Once of aluminum, three times of rubber. The last rubber case a complete success.

Treatment: Took impression in plaster. Followed this with another impression. The first expelled the blood from the capillaries. Made model from second impression. Used medium soft plaster, pressed well up so as to copy the muscles. Made model at once, try plate, and vulcanized the same day. No suction chamber. But subtracted from model where mouth was soft, viz.: at lingual aspect of the tuberosities, and to a lesser extent, across the entire heel of the model. Added to the model on center of ridge and median line. Made a flat occlusion providing for much liberty of lateral movement of lower jaw. No complaints after two weeks' use. In this case let me speak of a matter not bearing on the subject:

The patient took his second case in to a dentist in a suburb to have it filed where it impinged. He told the dentist of the trouble he was having, and this brother told him that Perry could make him a set if anyone could. This kind of brotherhood is worth something. It helped him and me, and the patient, for when I was asked some time ago who to send a patient to in his town, I of course sent to him, and the confidence my patient had in me was so strengthened that the difficulties which as he saw inhered in the case were made easier.

I have in the past year or so had success with some very flat mouths. In these cases I used two factors: Adaptation rather than fitting; and occlusion. First, of prime importance, an impression of plaster with a proper tray, studying the soft places, subtracting or adding to the model as indicated by these, and the making of a proper occlusion, grinding away all glazed surfaces for occlusion and giving a wide range of articulation.

I have had success with partial sets (lower) where the molar surface is to be supplied and the six oral teeth and perhaps two or more bicuspids remain. These are all difficult cases to make and to wear. Only gold should be used, using clasps on the bicuspids. A perfect die secured, I take thirty-gauge pure gold, swage this over the lingual surface of the teeth and back over the ridge a short distance. It is really a doubler. I make the pattern large. This pure gold plate drops into every space between the teeth and fits like wax. Over this I swage my plate of 20k. The 20k I trim to the plate line and the pure is left flush, giving a place on which to lay the solder. The two plates are now soldered together, and the result is a stiff and perfect fitting plate. I regard the fit of these cases the main factor in success. Forty gauge platinum may be used also. I have succeeded in cases of this sort instead of using clasps. Where one or both teeth to be clasped are crowns or badly decayed, I make a cap over the root, one-fourth as long as the crown of the tooth. This cap is a simple cartridge, sides parallel, and occlusal edges rounded.

Then I make a second cap over this one. This latter cap I set into a gold crown and solder it there. Now cut a hole in the plate large enough to receive these with the gold crown in position and solder your gold crown to the plate, and cement the first cap to the root.

As these cases all settle in use, the second cap should be a line or so longer than the first. Gutta-percha may be inserted here, and makes a sort of cushion. As the plate settles it may be removed, or none used, as the case seems to indicate. In any event, too much pressure must not be had on these capped roots. I have used in these cases the Griswold glove button fastening, but as the place settles, it will ride here, and sooner or later induce absorption and loosening of root.

I have made clasps for years in the following way: Secure a perfect plaster impression of the tooth to be clasped, fill this with copper amalgam, fill only the impression of the tooth, so that you can isolate the clasped tooth. Now take inlay platinum, burnish this around the tooth, secure it with hard wax, slip off the copper model, and invest in sand and plaster. Fuse over the platinum clasp metal. You have resulting a clasp that fits. You may grind and trim to desired width, leaving a lip over the cutting edge, or on the natural slope of the tooth, thus making a clasp which not only fits, but will not press up against the gum. These clasps are as springy as clasps are when made of clasp metal. This quality I have found to be of little consequence. My experience teaches me that a clasp which fits is best, and if there be only a slight swell on the tooth, it can be made to go over and off, even though soldered rigidly to the plate. I prefer the clasp metal not because of its springiness, but because it is hard and will not wear. All edges should be rounded and absolutely smooth.

Patients who object to plates may be taught to call these sets "removable, saddle bridges." Teeth are secured to the plate by pink rubber. Justi No. 8 is incomparably better than any I have used.

Dr. Hart J. Goslee:

Mr. President, I regret very much indeed that I did not have an opportunity to make some preparation for this discussion tonight. I did not know, however, that my name was on the program until last Friday afternoon, hence had no opportunity to make any preparation, and yet, after all, I do not know that it amounts to much, because anyone who could not gain inspiration from our practical friend, Dr. Taggart, and our humorous friend, Dr. Perry, could hardly gain inspiration from anything or anybody, and I shall endeavor to confine my remarks to the paper of Dr. Perry and to the so-called rambling talk of Dr. Taggart.

To begin with, I want to agree with the opening remarks of Dr. Perry with regard to the adaptation of dentures. When we stop and think of the difference in the resistance offered by various parts of the soft tissues of the mouth, and particularly of the upper jaw, we know at once that we do not want a perfect fit, because the cushion-like effect referred to is not the same over the entire surface. Hence I agree with him in that fit is not what we want, but *adaptation,* and as long as I am speaking upon this particular line, what I say also holds good in regard to what Dr. Taggart has said with reference to saddles. I do not believe it is possible to secure an adaptation of a saddle by simply swaging it. Some three or four years ago Dr. Taggart properly said that we should swage the saddle only to give us the correct conformation, and then get the adaptation by carrying it directly to place in the mouth, and burnishing or swaging, as you please, in the mouth itself and upon the tissues against which the saddle is to rest.

Going back to Dr. Perry's remarks again, he said something about making an allowance in the construction of telescoping caps for the subsequent settlement of these partial lower dentures, which, as we know, will usually take place, and which allowance is desirable and necessary. The reason I refer to this is because I want to agree with that particular assertion, but in turn to disagree with another one, because he followed shortly by saying something with regard to occlusal rests on clasps. An occlusal rest on a clasp is often a good thing, provided the denture will not settle appreciably, but if it does the strain and work of the so-called removable bridge is thrown directly upon the clasp, which is not desirable, and such an allowance should be made in these cases just the same as in telescoping caps.

Among the many good things Dr. Taggart spoke of was that particular one with regard to the necessity for taking plenty of time to do bridgework. I do not think there can be any question—and I believe you will agree with me—that perhaps 90 per cent of the failures in bridgework come from doing the work so rapidly that there is not an opportunity to execute it properly. In the construction of bridgework we must take plenty of time and do it right or else not do it at all. In the preparation of the abutments, and in the construction of the foundation for any superstructure, you must spend sufficient time to observe every necessary detail or the superstructure will not be what the possibilities offer. If you do not do so in the preparation of the roots, it does not make any difference whether you so observe any other portion of the operation or not; it will not be of much service because you have failed at the beginning.

A comparison was made between a good fitting plate and a poor bridge. In this connection I would like for a moment to bring out one special point with particular reference to partial cases. I believe partial plates often do as much harm as poorly constructed bridges. When I make this assertion, I do not mean to say that we should make, or insert poorly constructed bridges, but I do mean to say that even well adapted partial dentures will often do as much harm as poorly constructed bridges. You have doubtless seen the evil results of wearing partial dentures, where they so impinge upon the lingual necks of the remaining natural teeth as to ultimately cause looseness of those teeth. I have in mind one case where every tooth in the mouth of a patient about forty years of age can at present almost be removed with the fingers, due to the constant wearing of a partial plate that fitted the lingual surface of the teeth and gum accurately, but having been worn so long these teeth were forced outward and became loose—not necessarily because of neglect, as the patient is more or less cleanly, but because of the pressure and friction of that removable partial plate riding against the necks of the teeth. I mention this case to call attention to the harmful results which may come from the wearing of partial plates.

Another important phase incident to the construction of bridgework, and one that we should think about, is the feature of shrinkage or contraction, as Dr. Taggart put it, of the solder in the assemblage of extensive work. I have always practiced and contended that in the assemblage of bridges of from four to six teeth we should make them in sections, and I do not believe it can be done correctly and accurately in any other way, because of the shrinkage of the solder. In the typical extensive cases to which he referred in order to have a successful result, it is always necessary to follow this line of procedure, and I simply make reference to it by way of emphasis.

Another very important feature incident to the construction of bridgework is the wearing of the piece in sections before their final assemblage, and I will go still further and say that I believe all bridges should be worn a few hours before final mounting, in order to allow the roots to so adjust themselves as to readily admit of the insertion of the finished piece with some degree of facility. I make it an invariable practice to have the patient wear the bridge at least a few hours before it is finally mounted. In small bridges, however, there is less necessity for this, as those having only two or three abutments may go readily to place in the first effort.

I wish I had time to enter at length upon the discussion of another point touched upon by Dr. Taggart, but I will only briefly refer to it, namely, the feasibility of the devitalization of pulps in the roots of the teeth that are to be crowned. I remember very well six or seven years ago when I had the temerity to read a paper before this Society, advocating such a procedure as a universal practice. I was, in so doing, jumped on unmercifully by almost everybody excepting, perhaps, Drs. Harlan and Taggart, and yet I felt it was the best procedure then, and have been even more convinced of it since. I agree with Dr. Taggart when he says that he does not believe it possible to take the average case and construct and adapt an accurate piece of work until the pulps of the teeth are devitalized, unless one uses something like the method of inlays which he has indicated in his diagram upon the board.

It is my opinion that this or a similar method of attachment is extremely useful many times, and also that such an attachment, as constructed by Dr. Taggart, could probably be used more or less universally. It is my further opinion, however, that the same attachment constructed by the average dentist would result in failure, and for this reason I do not believe in its indiscriminate use in the construction of bridges where we hope for a favorable prognosis. If such attachments are constructed by one who will do the work as thoroughly as Dr. Taggart, and who will take as much time as he does, it will be a success; but unless it is done under such conditions it will prove a failure. If we do not start out with the idea in view of doing this thoroughly, then we would usually obtain a much more permanent and favorable result by placing a crown upon that tooth which would offer an opportunity for getting more accurate adaptation than we could get in the inlay.

With reference to saddle bridges, I want to again refer to that phase of the subject because I desire to take this occasion to agree with Dr. Taggart in almost everything he has said. I have followed the practice of placing saddle bridges in the mouth more or less extensively and I agree with him in that if the adaptation of the saddle upon the tissue is accurate, we have a more hygienic condition than we have in the lingual surface of the ordinary bridge as ordinarily constructed. Dr. Taggart has said, however, that he had not built a bridge without a saddle for some time. While I speak of it as a desirable procedure, yet you can not place a saddle upon the tissue unless that tissue has become well absorbed; hence, the time intervening between the loss of the teeth and the insertion of the bridge is a very important factor in indicating its use.

For this reason I do not believe saddles are always indicated, but where they are I do believe we get, as I have said, a more hygienic condition. Where they are not indicated, however, I make every effort to have the lingual surface of the bridge as self-cleansing as possible, and this can be facilitated by having the interproximal spaces between the teeth as large as possible. In this connection I would call your attention to bridges which we have seen where the facings were in such close proximity to each other as to preclude the possibility of keeping the interproximal spaces clean, and to avoid this I make it a point to have large, free interproximal spaces wherever I can do so without detracting to a great extent from the artistic effects of the bridge.

I may be going a little out of the way to refer to a question that Dr. Nyman asked Dr. Taggart with reference to the warpage of platinum solder. There may be some little warpage, but in my experience it has been so small that I have never noticed it.

As to amalgam fillings in roots, I agree with Dr. Taggart when he says that an amalgam filling used as a restoration for the lost portion of the root is no better than an amalgam filling. Of course it is not, but we have seen amalgam fillings in the mouth that have lasted twenty or twenty-five years. Probably a bridge or crown will not last longer than that. I believe we can adapt amalgam to those remote inaccessible margins of cavities with a greater degree of accuracy than we can the cervical edge of a band. With the use of a matrix as a guide in first inserting it, you can doubtless get a better adaptation to these remote, inaccessible margins with amalgam than by trimming the band to have it conform closely, but if the gum is first pressed out of the way sufficiently and the band then properly trimmed. you may not need to resort to amalgam.

As to the "Carmichael" attachment, my experience has not been the same as that of Dr. Taggart. I have had some successes in the use of this attachment, but mainly when applied to cuspid teeth. I can not say very much for their employment on other teeth, because I do not believe the same opportunities for securing integrity in the attachment and accuracy in the adaptation present.

Like Dr. Taggart, I have seen several of the attachments constructed by Dr. Carmichael, which were doing good service. I have, however, seen some of my own that were adapted pretty well, but proved to be failures, and hence I can not think it a good attachment for universal use. It is certainly not as good as Dr. Taggart's remarks would lead us to conclude for anterior anchorages in bridgework. Dr. Taggart said he thought the integrity possessed by the Carmichael attachment was as great as we could get, but I do not believe it is anywhere near as great as any kind of telescope crown. It is sufficiently great if the adaptation is sufficiently accurate to serve the purpose of anchorage without doubt, but I think Dr. Taggart has exaggerated it when he said that by placing the grooves properly and burnishing gold down into them we secured as much integrity as we could by any other means of attachment.

Personally, I do not give Dr. Carmichael as much credit as Dr. Taggart does, because if we look in Evans' Crown and Bridgework, in the American System of Dentistry, or in Essig's American Textbook of Prosthetic Dentistry, we will see illustrations of almost the same thing—the so-called "staple" crown—where the groove is cut down each proximal side and across the lingual or occlusal surface, and a small wire fitted into it and subsequently attached to the inner side of the crown. The principle is identical, and while Dr. Carmichael has modified and improved upon it, I do not believe he is deserving of the entire credit for the attachment, or that it should be called by his name.

Dr. Taggart:

Let me make a suggestion. I think the books referred to by Dr. Goslee have been written since Dr. Carmichael gave his attachment to the profession. Fifteen or eighteen years ago he showed that principle, and the American System of Dentistry, as well as Essig's work, have come out since then. I think the idea originated with Carmichael.

Dr. Goslee:

This remains to be proven. In this connection, however, I agree with Dr. Taggart when he says that a man who works by day or night, and finally invents something, is entitled to the same degree of protection for that invention as the man who writes a book is entitled to the protection afforded him by copyright.

Dr. George W. Haskins:

I wish to say a word or two in regard to saddles. In gold bridges I can not see any special object in a saddle at any time except to add strength to the bridge or to give a better surface for the tongue to play upon. As regards it offering any support to the bridge I can not see why or how it can. Suppose it bore hard upon the surface of the ridge when first made, it would not be long before absorption would take place, and the abutments would then bear the strain and the saddle would bear none at all.

I prefer a properly made partial plate to a poorly constructed bridge, but it is absolutely unnecessary for the plate to touch the lingual surface of the teeth and it is detrimental to their welfare where it does. I have in mind a plate which a lady wore for at least fifteen years, which was made by Dr. Allport. It carried a bicuspid on each side of the mouth and the attaching plate did not come within three-eighths of an inch of touching the anterior teeth. There was nothing more than a strip of metal across the palate, and without clasps. I made the plate over for other reasons, and not because it would not remain in place. The roof of the patient's mouth was as healthy as in any mouth and the balance of the teeth showed not bad results. In a healthy mouth, a partial plate, if properly made, is preferable to a poorly constructed bridge in every way. I am very glad Dr. Taggart spoke of his method of inlay abutments in bridges.

I have not the courage to devitalize teeth that I used to have, as I have run across too many roots I could not fill, and many times I have been sorry that the pulp was not alive, and I could do something with the tooth besides devitalizing it.

As to shrinkage, I have had no trouble in regard to shrinkage or warpage with platinum solder. The shrinking and warping of the gold solder that is made for dental purposes is caused by the zinc in it. This is put in to make it run smoothly under the blowpipe. If it were not there, it would be full of holes and pits. The solder made for jewelers' purposes, except for eight or ten karat gold, has no zinc in it, and for the higher grades they depend upon silver to make it flow.

I can not approve of the use of amalgam for building up broken-down roots before making a crown. Take, for instance, a tooth that has the crown broken or split clear down the side, it is impossible to fill that tooth and not leave ragged edges of amalgam beneath the gum unless you fit it perfectly with a matrix, and leave the matrix on until the amalgam is hard, and if you can fit a matrix you can fit a band. I let the band extend under the gum at the point I show you (referring to diagram). Within a month I have read an article by a gentleman who deplores the use of amalgam under such circumstances, for the reason that the mercury which is given off from the amalgam, even when hard, will contaminate the gold with which it comes in contact. How true that is, I can not say. I have seen but little, if any, damage done in that way, but it seems quite plausible.

I brought with me the cast of a case that I had considerable trouble with. I can not tell you what the result will be. It is a case in which all the diameters of the upper jaw are much less than those of the lower. The molar teeth are all gone on the lower jaw; nearly all on the upper. In order to masticate, patient protrudes the lower jaw until more than half the length of the upper teeth are covered by the lower, and her nose and chin are coming into close contact. She does not like it. In order to open the bite, I pondered a good deal on the subject. The diameters of the lower jaw are least at the masticating surfaces of the teeth; the teeth all lean toward the center, making it extremely difficult to get an impression or to make a die or plate that will fit. My original intention was to make a Griswold plate, but I found I could not do that, and then the next best thing which suggested itself was to raise the bite by making a short bridge on this (left) side, taking in three teeth, but on the opposite side there are no teeth back of the bicuspids. I crowned the first and second bicuspid with crowns long enough to separate the jaws the distance desired and these were cemented in place. Following the plan Dr. Perry just spoke of, I built a clasp which encircled both bicuspids, with the exception that I used pure gold instead of platinum for the foundation upon which to flow the solder. The object of making the clasp this shape is to prevent the plate moving to the right or to the left when in the mouth. A small saddle was then struck, the clasp soldered to it and the teeth attached with vulcanite.

Dr. B. J. Cigrand:

We have all enjoyed the practical side of this evening's work, and I am satisfied much good has come from it. I will not spend any time in commenting especially on what the previous speakers have said, but will try in a brief way to add whatever I can to the subject matter.

I think Dr. Taggart, when he spoke of constructing a large bridge, supposed to reach from the third molar to the cuspid, including the anterior four, and swinging around to the opposite third molar, he attempted to show the necessity of sectional soldering rather than to emphasize the idea of making such a large bridge. I simply say this because I do not think Dr. Taggart advocated such extensive bridges since the anchorage would be insufficient. Again, Dr. Goslee said something along the same line. Before putting on a large bridge of any kind, I let the patient go away with a temporary setting, using gutta percha or sandarac, say for a day or several hours, and have patient return after the roots have adjusted themselves to the position I want them, then I cement the bridge. I seldom cement a large bridge unless the patient has worn it for some hours. In this event there is not such a likelihood of peridental trouble or irritation developing immediately. I have set bridges with gutta percha, temporarily, and in some cases allowed them to remain for several days. I recall one case where the patient wore a bridge temporarily for two weeks before I permanently set it. I advocate the temporary setting of bridges if there is likelihood of root disturbance.

As regards the principle involved in the case illustrated on the blackboard, I am glad that Dr. Taggart covered it so well as he did. In a case of that kind I would, if at all possible, regulate the case first. If the patient's case warranted such a procedure, I would take this molar (illustrating), leaning a trifle too much, or this bicuspid (pointing to diagram), also leaning a trifle, causing a constriction at cusps, and take an impression with plaster-of-Paris; build a dam, if you please, with sand, and make an appliance with Watt's metal to fit between molar and bicuspid; cut out where necessary, and within an hour or so I would make a temporary attachment to fit tightly between these teeth. After this is done I would simply pack approximating sides (indicating) with cotton or rubber, forcing the two teeth back to normal position. It may take a month or two to accomplish this and we are supposed to be paid for this service. We are supposed to give the patient comfort and permanent service. If this should take three or six months, you should be paid for regulating the case first; after straightening it you remove the difficulty and proceed as in simple case of bridge. If you can not do this, then I would suggest Dr. Taggart's method as a good one, but where the case leans as much as Dr. Haskins' case did (and this was indeed a difficult case), I would rather have the patient go to someone else than to handle the case myself. In these impinging cases, the first thing is to make a temporary cast and regulate it, and if you have regulated it, it brings itself down to a simple case.

Dr. Perry spoke of occlusal anchorages in clasps. The only time, I believe, an occlusal anchorage in a clasp is indicated is where the patient is beyond middle life, has a motive or nervous temperament, and the osseous tissue is very hard. I do not think I would use clasps in a patient with sanguine temperament, for the reason that the gums are usually soft and spongy, and I would not advocate them in patients of lymphatic temperament for like reason.

Supposing you have a bicuspid and you rest the clasp on this point (indicating), bring it down and connect the clasp on the other side by any method you please, with the gums soft and spongy; as the plate sinks down the entire strain is on the bicuspid and the first thing you have is pericemental trouble, because the strain is too great. Whereas, if the patient has passed middle age, and the temperament is motive or mental, and the teeth do not move readily, I would put in a clasp, but not otherwise.

With reference to partial gold cases, referred to by Dr. Perry, where the upper root of the first bicuspid is missing and you want to make a gold plate, you are compelled to work out the case by making a Richmond bicuspid and meet the case something like this (indicating on blackboard) ; then solder on porcelain facing (indicating). It is difficult to put upon a partial plate an upper second bicuspid that is missing, having the gold for the occlusal surface and porcelain for the buccal surface, and soldering it to place. My method is to use the Davis crown. I take a Davis crown, make a gold pocket which envelopes basal portion and cement the tooth into this socket of gold. As for making artificial gum on the partial gold case I have for upward of eight years employed rouge with cement, getting most excellent and durable gum.

As Dr. Perry has pointed out, the foundation of plate work, of bridgework, of operative work—in fact, of everything which pertains to our field of work—is in having the basic work done properly.

Dr. John E. Nyman:

I would not presume to speak at all were it not for the fact that some of the questions that have been asked dealt with what I consider vital points. Some of the methods that have been described work better on paper and on the blackboard than they do in the mouth.

To begin with, I desire to say a few words about the warpage or shrinkage of platinum solder. This was brought forcibly to my attention shortly after the introduction of platinum solder to the profession. I have had occasion a number of times to make a platinum shell crown as one of the abutments for a bridge, and I have endeavored to make the cusps solid, if possible. I hailed with great delight the method of filling up the cusp for a platinum shell crown. I made several attempts to do it, and failed; then I went to see Dr. Ames, who perfected the solder and gave it to the profession. He said, "I have tried it once or twice, and it did not come out right; let us both try it." We tried it, and I tell you, on account of this spheroidal tendency in platinum solder, you can not fill the platinum cusps with the highest grade of iridio-platinum and the heaviest gauge that you can swage without having it warp so badly out of shape as not to fit the case. We have both tried it time and again.

If anybody wants to try it, let him take Hollingsworth cusps, lay on a perfectly flat piece of metal, pour Mellotte's metal on, swage up the cusps, leave a surface so that the edge is horizontally flat, fill up with platinum solder, set your bands to that, and notice the warpage. It is hard to see how one can avoid warpage which will pull the abutments out of place. The investment will not hold it together.

With regard to fitting saddles, I have studied saddles as much as any man in the profession. I have studied the conditions and tissues upon which they were placed, and it makes a vast difference with reference to fitting a saddle as to the vascularity of the tissues. Take hyperemic gums, it is dangerous to burnish the edge of the saddle into that gum the sixteenth or three-thirty-seconds of an inch. Why? Because the vascularity of the parts is so great that there will be hypertrophy nine times out of ten, and the tissues lie just outside the saddle. Mouths in which saddles can be used with greatest success are those in which the tissues are slightly anemic; but it is unnecessary to burnish the edge of the saddle into the tissues. If you burnish the edge of the saddle only slightly into the gum there will be more or less blanching of the tissues under pressure; it will shut off the blood supply and furnish at that point a place for wandering debris or food to lodge. Wait until after you have burnished, if the pink color does not return you have interfered with the circulation, and any saddle which interferes with the circulation will cause trouble. In regard to the Carmichael attachment, I have studied it and used it, and I regard the field for its use so limited as to be almost prohibited. Its use should be restricted to the cuspid teeth.

It is a part of the patent law of the United States that a man must apply for a patent within two years after he invents a thing, or the invention is open to anybody. According to this law, if Dr. Carmichael invented his attachment eighteen years ago, the patent must be at least sixteen years old and if that is true a comparison of the dates of the publication of the books that have been mentioned and the date of Dr. Carmichael's patent will demonstrate very largely the question of priority of invention.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held March 21, 1904, with the President, Dr. J. P. Buckley, in the chair.

Dr. W. H. G. Logan read a paper on "Diagnosis and Treatment of Fractures of the Inferior Maxilla."

DISCUSSION.

Dr. Arthur D. Black

Was asked to open the discussion. He said:

Mr. President, I wish very much that I might have seen the paper and read it, then I might have been able to discuss it better.

In general, I think all of us will commend everything that has been given to us in this paper. It is undoubtedly the practice of a great many general practitioners of medicine, and many dentists, as well as general surgeons, to use a bandage very largely in the treatment of fractures of the jaw. They are accustomed to using splints and bandages in ordinary fractures, and they do not realize the difficulties to be met with in the treatment of fractures of the jaw. We have in all fourteen pairs of muscles attached to this one bone, three pairs of which exert no particular pull, while eleven pairs are greatly concerned in the displacement of the bone. When we consider, too, the fact that with the movements of the hyoid bone, to which the depressors of the jaw are attached, the muscles are constantly in motion, and that we can not swallow or can not speak without pulling on these muscles, we must have a different treatment for this form of fracture than we have for ordinary fractures.

An important point that many general practitioners overlook in the treatment of fractures of the jaw is the occlusion of the teeth. If we do not get good occlusion, no matter how well the bone may be united, from a dental standpoint the result is in part a failure. We should strive to get the proper occlusion, no matter what the deformity is in the bone.

I remember a case that I showed at the odontographic clinic a year ago, in which there was a fracture between the lower second and third molars, and the width of the third molar was lost from the bone by necrosis. Had that bone been wired, drawing the fragments together, so that the lower border would be in proper alignment, I do not believe there could have been proper occlusion of the teeth. This case was treated by holding the teeth in proper occlusion, and allowing the fragments to unite with a deformity in the lower line of the bone. In this way an excellent result was obtained.

One might readily infer from what the essayist said in referring to the method of wiring teeth that it was not Dr. Gilmer's method, but a modification of another one that had been previously presented. I am quite sure that the method of wiring the lower to the upper teeth was first given to the profession by Dr. Gilmer. I think the essayist knows that, but from the manner in which it was stated in his paper one might infer otherwise. If I remember correctly, Dr. Gilmer reported the first case of this kind in the Archives of Dentistry, in 1887; that is, wiring the lower teeth to the upper.

The essayist mentioned the Heath splint as being one of the best in the treatment of these cases. While I agree with him in that, I believe we can improve a little on the use of metal splints in such cases. With a metal splint that is swaged over a model of the lower teeth and cemented on, the parts are held perfectly, and the patient is able to open and close the mouth, but if you make it of vulcanite, having taken models of both the upper and lower teeth and having them mounted on an occluding frame, and bite the upper teeth into the wax splint, when the vulcanite splint is cemented on, you will have a good surface on which the patient can chew. It is not uncommon to have these patients chew well on the third or fourth day. The splint can be placed on the teeth in the way the essayist mentioned by drilling a number of holes, one for each tooth, and it can be cemented on, and will hold perfectly well.

If I am not mistaken, the essayist said that when a fracture occurs at the back of the third molar tooth, it is necessary to wire the ends of the bone. It seems to me that is one of the very cases where it is unnecessary to wire the ends of the bone. If you apply an interdental splint that holds both the upper and lower teeth, or wire the lower teeth to the upper, the action of the masseter muscle will hold the posterior fragment against the other fragment, and you will get union without wiring through the bone, and of course that is to be avoided, if possible.

In closing, I want to mention a case that I saw in the practice of Dr. Gilmer about a year ago. It was a case of a man who was held up in Mexico; he was shot with a 38-caliber ball, the ball having entered the jaw, taking away two bicuspids from the right side, and coming out at the back of his neck. How it did not kill him I do not know. The man was sent to St. Louis for treatment. He came to Dr. Gilmer some years afterward with a large abscess in his neck, with a number of sinuses from which very foul pus was discharging. In opening this abscess, Dr. Gilmer found a piece of silver plate two inches and a half long, and three screws. The plate was attached to the bone by the screws, which had been screwed into the bone to hold the plate on. The bone united all right, but there was a bad deformity. The patient had discovered the fourth screw in the discharge from the abscess and hastened to Chicago, fearing that his jaw would come apart if another screw should come out.

DR. THOMAS L. GILMER:

If there is any one thing I like better than another it is to see the younger dentists taking hold of these subjects and presenting them in such a manner as was done tonight by Dr. Logan. The essayist was modest; his paper was well put; he covered the subject as far as he intended to go exceptionally well.

The young man who preceded me has taken a great deal of interest in these subjects and has treated more fractures in the last two years than I have, and each case has been an unqualified success. I have had plenty of cases of fractures of the jaws in the past twenty years, and unless there are some special reasons why I should care for an injury of this kind I am more than willing to turn them over to these young men, who have proven their capability in this line.

In regard to what Dr. Logan has said regarding diagnosis, there is nothing I can criticize; indeed, everything the essayist has said I can commend. There is only one thing I might add, and that is regarding differential diagnosis between fractures of the lower jaw and dislocations of the lower jaw. Occasionally a patient presents having a condition simulating a fractured jaw when there is a dislocation of the neck of the condyle; and sometimes he has a dislocation simulating a fracture of the neck of the condyle. If we have a fracture of the neck of the condyle, the clinical aspect of the condition is similar to that of a dislocation. There is a very simple method of differentiation between a fracture of the neck of the condyle and a dislocation of the jaw. In a case of unilateral dislocation of the jaw we will find the jaws are more or less widely separated and the jaw displaced to one side. To decide whether it is a fracture or dislocation, place the finger in front of the tragus of the ear; if there is a dislocation we will find a depression at this point; the lower border of this depression is rounded; this is the condyle; the upper border is concave, this is the upper border of the glenoid fossa. If we do not find this depression and there is a distorted occlusion with no fracture in the ramus or body of the bone, we may diagnose the case as a fracture of the neck of the condyle.

I wish to second all that Dr. Logan has said in regard to the use of bandages. Some of you know that many years ago I took the ground that Dr. Logan now takes, that bandages were not the best means of treating fractures of the lower jaw. However, I think there is a place for the bandage. In many cases of fracture the patient suffers very much on account of the movement of the fragments and his suffering can be relieved materially by the temporary application of a bandage until we can construct an appliance, if one is to be employed. The Heath splint is about the only one that we would care to use at the present time in a fracture of the lower jaw if there be a sufficient number of teeth on the jaw, and the breaks are sufficiently anterior to the posterior teeth. It is an ideal splint for those cases to which it is adapted. With Dr. Black, I believe that a splint made of rubber is better than one made of metal. I believe we get a better fitting splint when it is made of rubber than we can get if made of metal. I have made both kinds and they have proved satisfactory.

The essayist has given us a new point in the method of wiring of the teeth and bringing these wires around the splint to hold it in place. I have not found this necessary. Occasionally I have had to recement a splint, but generally am able, by care, to secure them at the first cementing so that they will hold without additional helps.

With reference to wiring through the bones, I do this as infrequently as possible. It gives an additional complication in that it makes a compound fracture, or if we have already a compound injury, it adds to the complications by exposing more of the bone to pyogenic organisms. There are a few cases which demand the wiring of the bones. I would differ a little with the essayist regarding the method of wiring. While it may be true that we can hold the fragments more solidly in position by using two wires in the manner he indicated, each hole drilled into the bone to this extent jeopardizes the success of the operation; therefore, I would use one larger wire instead of two and with this bring the fragments together solidly and would not expect much, if any, motion between the fragments, especially if the jaw were additionally supported in some other way.

Dr. Truman W. Brophy:

I will try to point out the way in which I usually fix this sort of splint. Oftentimes wire may be desirable as a means of retention. First, I apply the rubber dam, clean the teeth thoroughly, remove the mucus or anything which may prevent adhesion of the cement, cover the teeth with a little phosphoric acid so as to make the cement adhere closely to the teeth, then adjust the splint, the interdental portions of it being carefully and firmly burnished in between the necks of the teeth and a little above the festoons of the gum so as not to interfere with them. By this plan the splint may be securely fixed in most mouths, especially in one of the kind where the teeth are long and a larger border at the cutting edges than at the necks. The rubber is allowed to remain for some time until the cement gets hard; adjusted in this way you need have no fear of it coming off, as the cement will be so adherent to the teeth that you will have to scale it off and apply considerable force to do so. This metal splint is an excellent one; it serves the purpose well, and while rubber may be better so far as the masticating surfaces of the teeth are concerned, it can not be regarded quite as cleanly as the metal splint. Besides, it is more bulky than metal, and for that reason, I think, everything considered, I would be willing to sacrifice what I might gain by better occlusion for the advantages of more perfect cleanliness and the fact that the splint is not so bulky. Moreover, when swaged on to the metal casts, with die and counter-die in place, they all fit nicely to the occluded surfaces, so that we will have preserved nearly as good occluding surfaces as we would have without the splint being in position.

I was very glad, Mr. President, to hear Dr. Gilmer speak so pleasantly and encouragingly of the young men who show a disposition to take up this work in oral surgery, and in speaking of this I can not refrain from saying a word or two about the father of oral surgery in America—the late Professor Garretson, whose words of encouragement to me, while a student, were really an inspiration, and I presume that had it not been for that delightful man, whose presence gave me so much pleasure, and who said so many kind words to me, I never would have attempted the exacting and difficult duties of an oral surgeon, and whatever success I may have had, or ever expect to have, in oral surgery I owe very largely to the kindness and assistance and careful teaching of Professor Garretson.

There is so much to be said on this subject that I can not think of entering into a discussion of its various phases.

I do not believe in the use of external bandages which have been employed so much generally in the past in the treatment of fractures of the jaw, although now and then they serve as an auxiliary in the retention of certain splints in cases in which they are indicated. My observation has been, particularly in the last ten years, situated as I have been, where so many of these cases are sent to us for treatment, that the external bandage has been a detriment. These bandages have really prevented the fragments from uniting because adjusted as they have been they have really carried the ends of the fragments farther out of position than they would have been if the bandages had not been employed.

The average patient who sustains a fracture of the lower jaw does not know it, and he usually applies to a dentist to have a tooth extracted. He finds that the tooth or teeth move, more or less, generally, and the dentist, perhaps, will extract that tooth or teeth, placing the patient in a most unfortunate condition for the adjustment of a splint or splints for the relief of his injury. And so it is very essential in all cases to examine the parts carefully and see exactly what is the matter. Even a man of large experience might be deceived sometimes in believing that this is the only tooth that is loose because displacement of the fragments does not always occur. The unnatural motion of the fragments and the deficiency in alignment or occlusion of the teeth would be ordinarily very clearly outlined and might be determined without much doubt. Therefore, I think an external bandage, as generally employed, is objectionable. Unfortunately, many of the physicians and surgeons who are called upon to treat such injuries have not received the proper training in their schools of medicine along these lines, as I have remarked before to dentists in this city. On account of the lack of that careful training, the best men thoroughly qualified to construct and adjust interdental splints or devices for holding in quiet apposition the fragments of a fractured maxillary bone are dentists, because it is directly in their line of work. Hence they construct these splints or devices; they know how to apply them, how to hold them in place, how to secure the proper occlusion of the teeth, and if he has succeeded in getting the ends of the fragments united and has obtained a proper occlusion of the teeth, he has done admirably.

There is one condition which, in my opinion, makes an external bandage necessary, and that is in the management of edentulous jaws. Dr. Logan did not say anything about this form of fracture because he did not want to take up too much of the time of the society in treating everything in connection with the subject of fractures; but the Gunning splint is useful in such cases, and those are the only cases in which I would use it. The younger members of the profession do not remember, probably, or know how that splint received its name. As a matter of information I will say that when President Lincoln was assassinated his secretary of state, Mr. Seward, was attacked by an assassin, and although he did not lose his life he sustained a fracture of the jaw, with other injuries, and Dr. Gunning, of New York, a skillful man in treating fractures, was sent for. He went to Washington, adjusted what is known as the Gunning splint, a rubber affair which fits the teeth of the lower and upper jaws, leaving an opening in the anterior part through which food could be introduced. That splint is used by a few dentists in edentulous cases. It is indicated in them. It serves a good and useful purpose and oftentimes obviates the necessity of wiring bones. I have wired bones because I could not do anything else, although I would not do so if I could devise or make a splint that would serve the purpose and bring about union.

The essayist did not mention cases of ununited fractures, cases where the bone is ununited by reason of the filling in of connective tissue or fibrous tissue, which causes more or less motion, and when this is the case there is no other treatment than to operate and remove this mass of tissue interposed between the fragments, bring the freshened fragments of bone in contact and hold them steadily until union takes place.

Dr. C. E. Bentley:

My excuse for discussing this paper tonight is to present to you a form of wire that Dr. Goslee has introduced, and which he asked me to present for him, which I will do at the latter end of my remarks.

My experience with fractures of the lower maxilla has been limited. I have had within the last ten years quite a number of such cases through my hospital connection, but my private practice has not been overburdened with this form of work. I have attempted to keep abreast with the literature of the profession in this work and have sought every opportunity I could to see such men as Dr. Brophy and Dr. Gilmer operate on these cases. What conclusion I may come to only concerns me, but I am firm in my conviction that the old methods of treating these fractures are cumbersome and obsolete, and the method that has been attributed to Dr. Gilmer has come to take their place, namely, that of wiring. It has simplified the treatment of fractures of the maxillæ, and possibly it has been improved upon as we have gone on, from time to time, to such an extent that fractures are no longer the terror to us that they were formerly.

I can not see very much necessity nowadays even for the splint, except in isolated cases. The Heath splint is a good one, in that it has the advantage of permitting the patient to chew food during the process of repair. But there is this objection to the splint *to me:* Even after you have wired the teeth together and have placed the splint in position there is always that dreaded uncertainty that the splint has either displaced the fragments or that the splint is not in a correct position, and we have no means of determining that the teeth are properly occluded; hence I do not employ the splint any more in the class of cases that has been thrown upon the board. I prefer to adopt the quicker process—that of wiring the teeth and of feeding the patient on liquid diet—than to employ a splint and have the patient make use of the jaws. However, there are cases in which I think splints are indicated. I think the splint is preeminently indicated, as Dr. Brophy has said, in the edentulous mouth, and instead of the Gunning splint I would prefer to use the one made of rubber. Possibly Dr. Gilmer can give us the name of the splint. It is a splint that gives an impression of the upper and lower jaws, both of which are united by rubber in posts vulcanized in the parts of splint, the posterior and interior parts of the mouth, leaving a space for the introduction of liquid food, with which the patient can be fed and nutrition kept up. I am opposed to boring into jaws. I saw a very malignant case of osteomyelitis as the result of boring into the fragments of the jaw for the reduction of a fracture of the inferior maxilla, and I concluded at that time I should never use that method if I could employ another. There is one exception, however, to the positive statement I make, and I should like to know from Dr. Brophy or Dr. Gilmer how they treat these cases. Let us imagine a case in which there is a fracture on either side of the symphysis in the region of the lower cuspid teeth and the upper third of the ramus. With a fracture in that location the part of the mandible described between the cuspids would be drawn backward and downward; the tension of the muscles there would be great, and to hold the fractured parts in apposition requires a terrific opposing strain. I do not know, but I simply doubt, whether wiring would hold the fragments in position. But in this one case I had I treated the fracture in this manner: The location of the fracture was on either side of the symphysis in the region of the lower cuspid teeth and the upper third of the ramus. I made what I might term a *permanent anchorage* upon the side where there was a single fracture. The single fracture was on the right side and the other fractures were on the left side. I made a permanent hold there by boring through the jaw beneath the apices of the teeth and used heavy silver wire for that purpose, using a staple and *fixing* it; then I brought the other parts together on the left side by wiring and had complete occlusion. The upper third of the ramus *I did not touch* at all. I reasoned that the masseter muscle and the other muscles in that region were sufficiently strong to hold that part in position, provided the teeth were in normal occlusion. I further reasoned that even though the teeth were in normal occlusion anything that would open the jaws would prevent the normal apposition of the fractured parts in the ramus, and we would have thus created a *false joint* at that point. I believed that that was rational philosophy in that case. It was the only case in which I bored through the jaw. I was able to secure but one side by wire. I should like to hear what others may have to say relative to the treatment of that case.

Dr. Gilmer:

Were the teeth intact on both sides?

Dr. Bentley:

Yes. A few of the teeth were lost; I don't remember how many. It was the only case where I could see that boring through the jaw was justifiable.

Dr. Goslee, who is unable to be here tonight, has asked me to exhibit this model (referring to model), together with this form of wiring, which he has used in a large number of cases of fractures treated at the County Hospital. The particular feature is the novelty of the wire that is used. The method of wiring you are familiar with by reason of the publications on this subject by Dr. Gilmer and others. Those of you who have wired fractured jaws know that there is always more or less liability for the wire to break off when the wire has been drawn taut. This is *bronze aluminum* wire. It is very tough; it can be annealed and made pliable, and it seems to be able to stand a greater amount of stress than any other wire that is used. I have used it in one case with satisfaction, and I present it to you as coming from Dr. Goslee. This wire can be procured of Truax, Greene & Co., of this city.

Dr. W. H. Taggart:

The remarks of Dr. Brophy brought to my mind an incident which happened many years before I moved to Chicago from Freeport. A young Irishman had two occupations. One was brakeman on a freight train and the other was getting drunk. When he was not braking he would get drunk. One of his favorite pastimes on Sunday was to go out to the brewery, on the outskirts of the city of Freeport, buy and drink beer. One Sunday he got furiously drunk and got into trouble with some Germans there, who kicked him in the head and left him for dead. But he revived. This happened on a Sunday. On Friday he came to my office and told me he had been in a fight on Sunday and had been kicked in the jaw, so that one of his back teeth became loose, and he wanted me to extract it. He opened his mouth. I felt the third molar, which was quite loose.

Thinking I could extract it without much trouble, I took my forceps, held his head in my arm, told him to open his mouth wide, but just as I was going to catch the tooth to extract it he opened his mouth wider, the bones slid by each other, so that the third molar stuck up half an inch higher than its normal position. You can imagine what would have happened to that condyle if I had got hold of that tooth and tried to pull. I recognized at once there was a fracture, but not being very well versed in repairing fractures of the jaw at that time, I told him to go to the surgeon of the Milwaukee road, who lived near town, and I did not hear anything more about him for four months, when I met him on the street and said: "Pat, how did you get along with your broken jaw?" He replied: "I went to Dr. Buckley and he said, 'You drunken brute, get out of my office; I won't touch you.' So I didn't have anything done for it; I got drunk again, and remained so for four weeks." I told him to come to my office for me to examine his mouth. He did so, and on examination I found he had thirty-two good teeth, with the most beautiful articulation you ever saw, not faulty in any manner, and by careful manipulation I could find no deformity whatever. I thought I would relate this case to show you what nature will do for an Irishman.

Dr. G. V. Black:

I used to treat a good many fractures of the jaws, but recently I have not if I can find somebody else to do the work. Occasionally I wired fractures, but, lest you younger men should conclude that this matter of the treatment of fractures is easy and nice, from what has been said, I want to tell you a story.

Some years ago, before the treatment of fractures became so easy, I received a telegram one day from a surgeon, some seventy-five miles away, saying: "Come on the next train; fracture of the lower jaw." It was not long before train time. My experience in such cases had led me to carry everything I possibly could in my sack, so I tumbled everything I thought might be of use into the sack, took the train, and when I reached the railway station I was carried five miles into the country. I found there a fat German, who had been struck with a pulley that he had fastened to the floor of his barn, with a rope passed through it for raising hay to the mow. He got two gashes in the cheek; the lower jaw was broken at the angle in the region of the bicuspids on both sides and fractured in the region of the first molar on one side. The accident had happened three days before. His face was very much swollen. I arrived there at about 8 o'clock in the evening. The fragment of bone upon the left side was turned, so that it was impossible to get an impression of the teeth in that position; the fragment was turned to the lingual side, and to make the matter worse there were only two teeth left in the upper jaw, one cuspid and, I believe, one of the bicuspids. So I had nothing to wire to. Well, I did not think I had an easy job. I got as good an impression of such teeth as I could; then I took a special impression of the teeth turned out of position, and I reconstructed the jaw in plaster. Then I got heavy wire laid upon that, and, having a piece of gutta percha, I made a heavy gutta percha splint with a big wire running through it. How to hold that on was a problem. I had some good nails with me — large ones. I passed a nail into the first fragment of the jaw and through the cheek a long way out; I fastened it again in the same hole to reach the bone, and I fastened it up to the buccal side of the teeth and drew through some good, heavy wires. I did that with each fragment in the lower jaw. The teeth were mostly remaining in the lower jaw, but gone in the upper. I wired that splint solidly into the lower jaw, or rather the lower jaw solidly into that splint in that way, and splinted the upper teeth that were remaining and fastened them there. I did not think of reproducing the occlusion; the occlusion was lost by the loss of the upper teeth, so that I turned my attention to constructing a fairly good lower jaw without any reference to occlusion. Sometimes we can do that in these cases. I put on a bandage and held the splint against those upper teeth carefully. In this case a bandage was necessary because there was a fracture through the ramus, and the posterior piece of the ramus had to be held in position by holding the splint against the few upper teeth that were remaining, putting the splint in position and holding it there with a bandage. Today, in such a case, we would have wired it to the remaining teeth. It would have been better than a bandage, but I did not think to do it at that time. I left the case in charge of a local surgeon. The old man asked what the bill was. I told him it was $150. He said to me: "I will pay half now and the other half later." I heard nothing more of the case until six weeks afterward, when a little fat German came into my office one day and said, "Don't you know me?" I said, "No." "Well," he said, "you remember that fat Dutchman who broke his jaw?" I said, "Yes; are you the man?" He replied, "Yes." The old man had a nice jaw. He had some scars on his face, otherwise one would never discover there had been anything wrong.

I believe if I had a similar case today I would treat it in the same way if I had the facilities I had then in the way of nails, but I would have wired that splint to the remaining teeth instead of using a bandage. It would have been much better to have done it in that way, but the case was successful as it was; the result was entirely satisfactory.

You, young men, in being called to these cases find something to give you great trouble sometimes; you have to use your wits and do things differently from the rules that are laid down. Occasionally you will find cases with the upper teeth partly gone, so many gone that you can not wire properly, and cases of this kind will come up. If you have a fracture through the ramus, push it back, wire the teeth up, and it will stay in position, because it is not likely that the muscles will pull in but one way. If you study anatomy carefully you will find the way to do these things. You will encounter some awkward and difficult cases sometimes. I recall a case of fracture of the upper jaw in which I had to use a bandage in order to hold the jaw in position, and fastened the lower to the upper. You are liable to meet all kinds of fractures of the jaw, and these cases are liable to come in spots. I remember very well Dr. Prince, who did a good deal of surgery in Jacksonville, had not had a case of fracture for some time. One day he called me and said he had a case of fracture. He requested me to bring my apparatus and treat the case for him. I went. The doctor said to me: "We have not had a case of fracture of the jaw for two or three years; but let us have everything ready, because we may have lots of them." Sure enough, we had several cases of fracture of the jaw within a few weeks thereafter. These cases sometimes come in groups. If you are situated in the outskirts of a city and a case of fracture of the jaw is brought to you the chances are that you will have several within a short time. It is well to be ready for the treatment of this class of cases and have materials at hand for any emergency. If you are going to do anything in the way of wiring broken jaws, be prepared to do this class of work. Most of the cases are simple, but others will put you at your wits' end and tax your ability to the utmost.

Dr. Truman W. Brophy:

Dr. Bentley asked what to do in a case of triple fracture of the jaw. I have found that the best way to treat such a fracture is to band the teeth, just as if you were going to crown them. For instance, let us suppose that the fracture is in the vicinity of the first molars; I would band the necks of the second and third molars, the first molar, the first and second bicuspids, and then, when these bands are all in place, I would take an impression, remove the impression, make a plaster cast, and, with a fine saw, saw the cast in two at the place corresponding to the fracture and get the proper relations of the fragments to each other. You have the bands in the plaster on the teeth. Take a piece of clasp metal and solder it on the side of the bands; you have the bands in proper relation to each other to adjust the fragments, so the teeth and broken fragments will be in proper relation to each other. Put the rubber dam on all the teeth to be banded, cement the bands to the teeth (illustrating), and get the fragments in proper relation where they will remain, and the patient will get on without any outside inconvenience. In a triple fracture you may band any number of the teeth; put the fragments in proper relation to each other, cement the bands and appliance on, burnish it, let the cement dry thoroughly and it will hold.

Dr. Bentley:

The particular point is, Would you have done anything with a fracture in the upper third of the ramus?

Dr. Brophy:

No; I would let that alone.

Dr. Logan (closing):

Since there have been very few objections raised to the ideas embodied in my paper, I have but little to say in closing the discussion.

In reference to Dr. Arthur D. Black's statement that I suggested a metal splint or wiring the bones together in case the fracture was in the angle of the jaw: In case the fracture is situated in the substance of the masseter muscle or angle of the jaw, I recommend that the teeth be wired together or that an interdental splint be employed.

If the case that Dr. Bentley described came to me, with six or eight teeth in the superior maxilla, I would have constructed an interdental splint, corrected the articulation and placed the splint in position.

DR. BENTLEY:

You say you would construct an interdental splint in a case of fracture in the upper third of the ramus?

DR. LOGAN:

Yes, sir.

DR. BENTLEY:

You do not get proper occlusion when you have anything between the teeth; that interdental splint does not permit this joint (referring to illustration) to come together at this point (indicating); hence when there is no repair of this fracture on this side of the symphysis you have got no repair of the upper third of the ramus.

DR. LOGAN:

I see your point. If an interdental splint was constructed one-half inch in thickness between the jaws this amount of space will be created at the anterior line in the neck of the condyle, where the fracture is, we would get perfect occlusion. There may be some better method than the one I have suggested.

In regard to Dr. Gilmer's method, I had supposed that he was the man who first wired teeth together until I read his book, and from his writings I gained the knowledge that it was some other man.

In reference to the kind words that have been spoken about us, the younger element of the profession, by the older members, I wish to say that it is very largely through their encouragement and kindness that we are engaged in this work. I have been engaged in this work now for over nine years, through the kindness of Dr. Brophy, and there has never been a time when he has not been willing to explain to me anything that I cared to have shown me. He is ever ready and willing to assist me in any operation I may undertake. I shall never forget the first operation I did. It was in my senior year, in 1896, when a woman came into the clinic with a tumor. There were about 160 students on the benches, and after examining the case Professor Brophy said, "Gentlemen, Mr. Logan will operate on this patient." All of the boys who could do so occupied seats in front, expecting to see a show. I remember very well this statement of Professor Brophy: "Keep your nerve." I went to work and removed the tumor; it did not return.

In regard to Dr. Gilmer, I will say that some four years ago there was a clinic held in this institution with which he was connected, and by mistake I was invited to give a surgical clinic, because the clinics are given by the professor of that department. I said I would not accept the invitation, because I knew this work belonged to Dr. Gilmer, unless he had been informed about it. He called me up on the 'phone and invited me to his clinic and to operate on cases with him. This is what these eminent men of our profession do for the younger men who are willing to do the work and study, and I wish to thank Dr. Gilmer, Dr. Brophy and Dr. G. V. Black for the kindness and encouragement they have extended to us young men.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held at the Wellington Hotel, December 8, 1903, with the president, Dr. Elliott R. Carpenter, in the chair.

Dr. L. L. Davis read a paper on "Bridgework."

Dr. J. W. Wassall

Was asked to open the discussion. He said:

Mr. President: This is a very interesting and practical paper. I think the statement of the essayist as regards four teeth being too many for a fixed bridge is too sweeping. It has application in a great many cases, but we have to be governed by the conditions found in the mouths of the persons who are going to wear the bridges. I have in mind now a patient for whom I made a bridge which extended from the third lower molar to the first bicuspid. It was put on about fifteen years ago. It was fastened to the bicuspid with one of the caps that Dr. Davis spoke of. Owing to caries under it, I had to extend it to the cuspid, using the Griswold attachment for removable bridge. But he does not like it as well as he did the old bridge. There was a bridge of six, removable, a good example of the Griswold work. He fancies there is too much strain on the third molar, notwithstanding the saddle is there to help. He has a fixed bridge of five teeth on the opposite side and gets more comfort from that than the new one. I presume all of us have had under observation bridges that consisted of four, five or more teeth that were clean, approximately. So I am not in a position to condemn them.

I have had quite a little experience in making Griswold attachments for removable bridges, and I indorse everything that Dr. Davis has said about them. I think a removable bridge is the thing to use wherever we can employ it; but, of course, there are many mouths where there is not space enough in the occlusion between the jaws to take the Griswold attachment in their full length, which they need in order to be firm. If there is much force used in mastication in these cases we must make permanent or fixed bridges.

As to the question of abutments on teeth, where you desire to save the pulp and not cut down the tooth and put a cap over it, the Carmichael system, or any other system of that nature, I think, is very useful.

I do not think any fixed bridge should be made with saddle. I made some of these many years ago, and I think they have all been replaced now by the ordinary kind of a bridge. I am in favor of removable bridges with saddle, but not fixed bridges with saddle. That is the one reason why a porcelain fixed bridge is not used in dentistry, because it must be made with saddle in order to get strength. All porcelain bridges I have ever made that were fixed I believe failed.

Dr. Case:

In these saddle bridges does the pressure of the saddle come upon the alveolar ridge the same as in a plate, or it is supported by the abutments?

Dr. Wassall:

The pressure is made a little bit strong on the ridge. It causes a little absorption, so that it will make a slight indentation into the tissues.

Dr. Case:

Then it can not go any further?

Dr. Wassall:

There is no progressive absorption under a saddle. The bone will adjust itself to it. If there is too much pressure it will be absorbed; if there is not enough it will fill up a little. We like to have a removable saddle bridge imbed itself in the mucous membrane for snugness, to keep the food, saliva and air out. In making a saddle I always make it a point not to have pressure on the crest of the ridge, but at the margins of the saddle. But wherever there is enough space in the bite to make a porcelain bridge of a removable kind, I use iridio-platinum structure and make it strong. I have it trussed back and forth with heavy iridio-platinum post wire.

Dr. E. J. Perry:

I think we are fortunate, Mr. President, in our essayist this evening. I do not think he ended as well as he began, as I do not agree with his conclusions entirely. But with most of the paper I certainly agree. To my mind the essayist is exactly correct in the statement that a fixed or permanent bridge should not carry between abutments to exceed four teeth, which is just two teeth more than I permit myself in my practice to make. I think the position of four teeth extreme, and the position named by Dr. Wassall that there may be even more than four teeth is untenable. However, he modified the statement by saying that in certain mouths it is practical. Possibly that is true. That brings us to this statement, it seems to me: Bridgework is the thing to do under its indications, and that will lead us, of course, to discuss what the indications are. The ability of the operator must be taken into account. A man must be honest with himself, know what he himself can do and not what experts can do. I have long since quit saying to patients that this bridge or this piece of work is permanent. I have learned that patients must not expect permanent work from us.

On general principles I am opposed to a removable bridge or a fixed bridge which divides the pressure with the abutments and the soft tissue or ridge. It is impossible for me to see how a bridge can sustain the pressure which is divided between the abutments and the ridge. Either the abutting teeth or the piers must support the pressure of mastication, or else the ridge. My objection to the Griswold attachment is that it occupies so much space in the lingual surface of the teeth, and if it is made of iridio-platinum, and porcelain baked on it, it will almost surely draw or shrink a little in the baking, and it is difficult in my hands to get it on, and it does not work as well in practice as it does in theory. One swallow doesn't make a spring. We are talking about a system of practice. I have some Griswold attachments that are doing very well. I will describe one case where I think the indications were for a Griswold attachment, and where it has been a great blessing to the man. This man had just two lower cuspid teeth left in his mouth. I devitalized the two cuspids, put attachments on them, and they have been a great blessing to him. In this case the Griswold attachment was used in accordance with the indications. I thought it was my duty to use these attachments in this particular case. I could not have used these teeth in any other way to such advantage as I did in this case.

I do not believe in fastening a bridge case to the lingual surface of a vital tooth. I do not believe that the Carmichael attachment will go over or around. Once in a while it may be used as a pier between abutments, but as an abutment I do not believe it is rigid enough; there will finally be a leak under it, and then it becomes a question as to the durability of the cement again. The first thing you know you have one end of the bridge loose and the rest of it tight.

I do not put as many bridges in the mouths of my patients now as I used to do. There was a time when I was bridging wherever I could see teeth out, but I have quit that practice and I make very few bridges now as compared with then. The cases for whom I have made bridges are of this class. Let us take it where we have lower cuspids and lower first or second molars, and they are loose. There is some calcific inflammation present, or possibly a little pyorrhea. The teeth are loose; the patient dreads to have these teeth taken out and have an artificial set made. I can say to such a patient: "I will make you a bridge and it may last you from three to five years; it will do you a great deal of good, but these abutments will finally come out. If you are willing to have that done I will do it." I say to the patient that I have been able, in a number of cases, to tide my patient over from having an artificial device of a full set, using comparatively loose teeth. But I do not say to my patients that they are going to be permanent. I do not believe they are.

I am glad the essayist has handled this subject as he has. It is impossible for men of different kinds of practice to agree exactly as to what is the best method, and so far as bridgework is concerned I do not believe any particular system of practice can be invariably followed.

Dr. J. H. Woolley:

I have enjoyed the paper of Dr. Davis very much, because I think he has the courage of his convictions. A good many dentists dislike to go against the orthodox notions of accepted practice. We do not like to go against what seems to be our authority in regard to religion or politics, and I feel similarly with regard to this subject of bridgework. Undoubtedly bridgework has been used too indiscriminately. While I have not done very much of it myself, I have been very careful to select my cases, because I have seen wholesale devastation produced by bridgework.

As to the merits of the different kinds of work, I am not specially prepared to make any statement. I feel that the Griswold bridge in many cases is a useful piece of mechanism. So far as expert work goes in replacing bridges in the mouth, I like the Carmichael bridgework. I have seen it worked in many cases very acceptably. I am not an expert in this line of work, consequently I can not say very much.

Dr. C. S. Case:

As you all know, I have had no experience of late in making bridges. I used to take a great deal of interest in this work; in fact, I was pretty fairly up in this line of practice at one time, and still I like to keep in touch with modern ideas.

It is impossible for us to lay down a set rule for the construction of bridges. We must be governed largely by the conditions that present themselves and our capability of performing the particular kind of work. I have been somewhat surprised of late years that dentists have not more often taken advantage of the opportunity, which has seemed to me possible, of attaching bridges and dummies to bands that surrounded the crowns of teeth without removing the enamel. It happens to be an anatomical fact that all teeth, with the exception of the lower bicuspids, gradually increase in their circumferences from the occlusal surfaces to near the gingival borders. In the measurement of thousands of teeth I have determined this, and it seems to me very strange that dentists have not improved the opportunity of fitting the crowns of the teeth, as they might have done, with long bearing bands, extending from the occlusal border of the bicuspids and molar teeth to near the gingival border, not allowing the band to extend under the gum. These bands could be made out of clasp metal of the proper thickness, with a long, firm bearing that would be sufficiently strong and rigid for every purpose, leaving the entire occlusal surfaces free for mastication. I do not see why those bands can not be fitted to the teeth and be used as a removable bridge, or be cemented, so far as that is concerned. If the cement becomes loosened they are easily rmoved, the teeth cleaned and the whole cemented again.

Dr. P. J. Kester:

I do not know that I can say very much on this particular subject. I expressed my views in the paper I read in regard to what I considered the advancements of the dental profession. I was among those who were very slow to adopt bridgework, because I have seen so much bridgework that was done entirely to capture the lucid dollar, without regard for the benefit which the patient might derive from it. It did not appeal to me as a reasonable or scientific method of replacing lost parts of the denture.

My experience with removable bridges has been rather a commercial one, and it may not be fitting for me to say very much about them. The fact that the system appealed to me as a reasonable and scientific solution of a difficult problem was one of the reasons why I undertook the promotion of it to any extent at all, because I believe the removable bridge, with any of the latter attachments, and one which I am interested in, requires an order of skill in mechanics which is not possessed by the large majority of dentists. Putting in an ordinary bridge in the manner in which it is usually done, regardless of the conditions present, is neither artistic nor mechanical in its effect, and, therefore, it seems to me the introduction of a removable bridge carries with it the highest degree of perfection in mechanics and in art. I have in mind the Carmichael system. It seems to me that Dr. Wassall introduced a system for the attachment of bridges in the anterior teeth before this society, which is almost identical, as I recollect it, with the Carmichael attachment. From what I have seen of the Carmichael system, as practiced by the average man, I do not believe it will furnish a sufficient abutment for the attachment of the average bridge, either fixed or removable.

Dr. E. A. Royce:

I do not know as I am enough of a bridgeworker to talk on this subject. Bridge-building requires a good deal of engineering. The conditions must be thoroughly understood in order to determine what is best in each individual case; not only the abutments and the pocketbook of the patient, but the habits of the patient in regard to the care of the teeth; the habits in regard to mastication; the foods eaten by the patient; the general condition of the system, and particularly the conditon of the mouth. I have done very little extensive bridgework because I am not a good enough engineer to figure out the mechanical possibilities that some seem to get from a bridge. I see a good many failures in bridges that others have put in, and I see a good many failures in bridges that I have put in. I have some that I am proud of. The removable bridge, theoretically, is very nice. It shows on the cast elegantly, and I was very much taken with the first appliance I saw and immediately proceeded to use removable bridges of different kinds with different attachments. I have cases carried by attachments that give satisfaction to my patients which could not have been obtained in any other way. But here we come to that extreme nicety of mechanical engineering, and I have gotten so that in most of my cases I use attachments in the anterior part of the mouth, but if I have a bicuspid or molar for attachment I use clasps. I have found a lack of spring in a given attachment or attachments, where there are a number used in the mouth; lack of accommodation of the movement given to the natural teeth in mastication has occasioned many times a disagreeable sensation to patients, and sometimes the strain by the vibration of the plate has been so great as to loosen the abutments. These teeth would tighten up nicely and do excellent service after removal of the attachment and the replacing of a properly fitted metal clasp. Removable bridges have given me satisfaction with the attachments arranged in this manner. My own impression is that the position I have always occupied in regard to bridgework is not far out of the way, and I find that conservative men are coming to it, that a fixed bridge is about the last resort in the mouth, and there must be good reason for putting it in. The conditions must be absolutely correct or the usefulness of the bridge will be of too short duration to pay for the trouble required to put it in and the sacrifice of the necessary tooth for abutments for the bridge. In many cases, where we are today putting in extensive removable bridges, or extensive permanent bridges, for that matter, nicely fitting plates, with good clasps, will give us and give our patients fully as good satisfaction. There are very few of us who have been able to accomplish with clasp plates what should be done, and I think the profession today is more deficient in that particular direction than in any other.

Dr. A. W. Harlan:

The discussion has pretty well covered the subject. I have seen a good deal of bridgework in the course of my experience in Chicago. I have had a good deal of it made in my office; I have seen a great many metal plates and clasps of various kinds. If I had all of my molar teeth out above or below, I should have a removable bridge, and I would like to have it made so that it would be accurately fitted to my remaining teeth, so as to get a good substantial attachment. I have seen so many fixed bridges containing two and three, and four and five teeth between the abutments, and I have lived long enough in Chicago to discover that they are only of short life, comparatively speaking. Either one or the other abutment becomes loose, or there is something faulty about the method of attachment of the abutment, so that caries will attack the exposed, or the subsequently exposed, portion of the tooth, and so the bridge is a failure. The removable bridges that I know about myself from personal knowledge that have been useful are those where all the molars are out below and the bicuspids remain, or sometimes one or two bicuspids are removed—all of those, the inferior incisors out below, and perhaps the other tooth remaining, or all of the upper incisors and perhaps cuspids out, and presenting an opportunity for making a removable bridge and restoring any of the lost tissue. In my own individual experience those cases have done extremely well. Where there has been a single tooth missing in some other part of the mouth a bridge has not been made so far in my office. On the upper teeth, four or six, with removable bridge attachment, the lower teeth, with four or five or six out, and the upper and lower teeth, where all the molars are gone, they have been extremely useful, and those people who had previously worn suction and clasp plates and had cases of this kind made for them have been very grateful. In some of the cases where V springs have been made they have had to be tightened by spreading. I have never known but one to break off, but this was comparatively new. Since we began to make them, about 1900, there is plenty of time for them to break off. There is a sense of security about a removable bridge and a sense of satisfaction about it, in the knowledge that it can be taken out and cleaned, while a fixed bridge under no circumstances can be taken out and cleaned, and unless the bearing is equally distributed between the abutments, so that there will not be too much pressure on one or too much on the other, and the edge is pretty well in contact on a line with the ridge, sooner or later one or the other of these abutments, if there are two, will begin to come out. It is not easy to make people believe that through the condition of their mouths they may become thin or plethoric, or they may have some disease of the teeth that may affect their stability, and when you put a bridge in for a man who is thirty-five years of age you do not know what his physical condition will be when he reaches fifty. His tissues change; his habits may change; his tastes for different kinds of food may change; and so what is a good thing when he is thirty-five may not be a good thing when he reaches forty or fifty.

I agree with Dr. Perry that it is impossible to lay down any set rule and say that we should do everything by one system.

I think Dr. Case is quite right about the fit of bands that will cover healthy teeth without going beneath the gingival margin. I have always thought myself that in a great many cases where you could cover teeth it was a good thing to do. I have put on crowns for many people on molars and bicuspids and did not let them go under the gum. It has been a good thing for the teeth. All people who need bridges, and need them badly, are those that want to have them fixed, so that they can keep them clean, so that they will be good mechanical structures afterward, and I think Dr. Wassall is quite right about having no saddle when you have a fixed bridge, because sooner or later you get into trouble with those bridges.

Dr. Elliott R. Carpenter:

This subject has been so well threshed out that there seems to be little left for me to say. However, there is one thing I wish to speak of, and that is that this society as a whole ought to hesitate to cut down live teeth to any extent and cover them with crowns extending clear to the gingival border. I think that has been disproved by the arguments that have been advanced tonight and on many previous occasions. This brings to my mind a point which is a little digression from the paper of Dr. Davis.

I had quite a phenomenal record about a month or six weeks ago, in that in one week I had six alveolar abscesses under six crowns that had been placed over teeth with live pulps in them. None of the crowns were made by me. I have never been guilty but once of having put a telescope crown over a live tooth. This was done some eight years ago, and it has not given any trouble. I removed a crown that had been placed over a live tooth that had never given any trouble, on account of gold cusp wearing through, and at the request of the patient I replaced the crown where it had been several years before. That is the only case I have on record against me.

Personally, I take a little different view than that of many of the gentlemen present about the saddle business. I have several cases in my practice today of six and seven years' standing where I have placed saddles, under extensive bridges—bridges with from three to five teeth between abutments, and I have placed very narrow saddles under them. But those have all been in the mouths of patients who were over forty-five, and who kept their mouths in a very wholesome, prophylactic condition, and as yet I have had no trouble. It is true, I may have trouble tomorrow, but I have not as yet.

I believe the profession is becoming more conservative and more prudent in the selection of cases for crown and bridge work, and I am glad that Dr. Davis has given us such an excellent paper.

Dr. Davis (closing the discussion):

I am very much pleased with the discussion. I wish to emphasize again very strongly my objection to the use of a gold band on any anterior tooth. I do not know whether Dr. Case had reference to the anterior teeth or not in his remarks, although he mentioned centrals, laterals, etc. We will suppose that some of the anterior teeth are loose, and you see a great many cases with this kind of band around the cuspid teeth or around the laterals, and they are the filthiest things and have no strength whatever. In such cases I believe the substitution of an attachment of this kind is very serviceable, and, by the way, this far exceeds the Carmichael method, because the attachment is a strong iridio-platinum wire that is short and the soldering comes at the point of the line of the staple, so that all the strain comes entirely upon the little staple and the reinforced back. This backing is not finished. When it is finished, solder is flowed over this portion extending from just in front or in line with the staple to the other side, so that the entire strain is upon the reinforced portion of the gold backing and the staple itself. With the Carmichael system the gold is reinforced by soldering; the thin gold is burnished into the groove and solder flowed into it. There is not sufficient strength. I can easily see how caries might occur under an attachment such as Dr. Perry alluded to. But I have yet to see a case of caries under an attachment of this kind. Possibly other dentists have seen it. I wish to give Dr. Wassall credit for this suggestion, which I had in my paper.

Speaking of removable bridges, my views on the subject and my belief that a removable bridge is the proper thing in large cases and in certain small cases come entirely from my success with this little method of inserting a deep ridge in cases where there is a loss of two teeth. In fact, I think this case (exhibiting) represents the loss of a molar and bicuspid, with the space contracted. The tooth behind was covered with a gold crown, and the band which you see is shaped to the crown and reinforced, so that it accurately fits the crown and goes to position. In one case I spoke of the bridge had been in use fourteen years. There was absorption, and a slight space between the antagonizing teeth. In twenty-four hours I pulled out those teeth, set them up with rubber attachment without disturbing the abutments, and the patient is just in the condition she was fourteen years ago. It is not a plate with clasps; it is a removable saddle bridge. This is the only method of bridgework I employed at the time there was such a craze for its insertion, and I have never yet got to that point where I had lack of confidence in the serviceability of extensive bridgework, and only with the introduction of the

Griswold method have I attempted anything like extensive work along these lines. My entire paper is a plea for removable rather than fixed bridges.

AMERICAN DENTAL SOCIETY OF EUROPE, HAMBURG, GERMANY, APRIL, 1904.

DISCUSSION ON PAPER, "A HALF BRIDGE IN HIGH HEAT PORCELAIN," BY DR. W. A. SPRING.

Dr. J. F. Patterson

Said that Dr. Spring and himself were generally in accord with regard to crowns and bridges in porcelain, though he regretted very much he had never used the body which Dr. Spring had used. He had used S. S. White's and had had good results, only in a lower fusing body than that of Dr. Jenkins. Excellent results could be obtained in carving the entire body in molars and bicuspids, but he took issue with Dr. Spring with regard to carving the six anterior teeth in entire porcelain and without using a facing. He did not think an entire body could be made without a tendency to crack.

Dr. George Cunningham

Thought the question with regard to the six anterior teeth needed a little explanation. With regard to the so-called half bridge, when it was a question of appearance, he agreed with the essayist entirely, but where there was molar function the use of a half bridge was sacrificing utility for the sake of appearance. It was a question of having a reasonable regard to utility and to appearance also. There were times when the æsthetic must predominate, but in the back of the mouth he could not see why the work should be carried out in the way Dr. Spring had shown. The work itself excited his admiration; it was the best of its kind he had ever seen. Many years ago he worked a great deal on the same lines with high fusing materials, but he utterly failed to get satisfactory results. He could not control his results and could not prevent warping of the body. Even when the bridge was properly adjusted a slight change was sufficient to warp the bridge, and the result was absolute failure, and, consequently, despite Dr. Spring's remarks, he was still an adherent of facings. He would have no faith in his skill to reproduce the color by the other method. Sometimes there was great absorption in the cavities and it would be a very nice thing if it were possible to add a little bit of gum, and as he had some material left he would give it to Dr. Spring to experiment with, and later on, perhaps, he would give the society the results of his experience.

DR. W. MITCHELL

Said he should like to speak on the subject as more or less of an ancient worker in porcelain, considering it from the standpoint of high fusing versus low fusing. In 1871 he first commenced with high fusing. With regard to carving teeth, as a rule, it was not as successful as molding them, and his own experience was borne out by that of those who had done the most in high fusing work. Had he known that illustrations were to have been shown he would have brought some porcelain work to illustrate his arguments. He quite agreed with Dr. Patterson and Dr. Cunningham in regard to the advisability of using facings, certainly in the anterior teeth. It was no doubt the simplest, and for the majority of people the best, and most correct way of obtaining accurate coloring and shape. The difficulty with nearly all porcelain, especially the high fusing, was to control the shape. Dr. Spring was distinctly an expert and he would probably do it better than the majority, and probably would take more time over the matter than most people. But the average man, and he was the man who had to be considered, could do better work and more artistic work with facings and make a better selection and negotiate a greater number of cases by using facings than by carving. In a great many cases it applied to bicuspids as well as to the anterior teeth. It was possible to take a facing and build up the inside satisfactorily and make a functional tooth instead of a tooth for appearance. With regard to molars, he thought in a number of cases the carving was distinctly a success. It was essential to get a good bulk of porcelain over the cap or the crushing stress of mastication would split it from the cap. The new porcelain of Dr. Jenkins stood that strain very well. There was no question but what with regard to molars and bicuspids carving was a splendid way of obtaining the results aimed at, and those results could be obtained both from the artistic standpoint and the standpoint of function. But when it came to the front teeth, he was firmly of the belief that in a facing backed up with porcelain there was the greatest range of possibilities with the maximum advantage as to appearance and facility for attaining the greatest success.

Dr. C. Rathbun

Said it was impossible to have it both ways, appearance and utility. It seemed to him that the idea was to provide for the æsthetic effect in the six anterior teeth and a good biting surface. With a proper band and a pin on the second bicuspid it was possible to get a certain amount of masticating power on the dummy without interfering with the cuspid. The average man would get a good effect, and mechanically it would be a stronger piece of work.

Dr. W. A. Spring

In reply, said that with regard to the front teeth he had been forced into the carving of the crowns owing to the fact that in close bites an attempt to put on a facing and back up with porcelain had proved in his hands impossible, because in many cases there was no room for the porcelain. The lower teeth bit so close to the dowel that there was no room for a sufficient body of porcelain at the back. Whereas, if a tooth was carved entirely of porcelain it was impossible to place a dowel without diffiulty into the middle of the porcelain and carve the whole thing. Everything had to be planned beforehand by studying the case. He thanked Dr. Cunningham for his very kind remarks with regard to the work. As to the question of the lack of function in the dummy connected with the molar, it seemed to him that one was not justified in giving even to the molar tooth that tremendous leverage which would result if a full bicuspid crown was attached. His experience had been that of Dr. Cunningham in regard to attempting a full bridge of high fusing porcelain; it certainly did warp. He attributed that to the enormous heat at which it was baked. The platinum pin and band, on coming out of the furnace, was somewhat blistered, which proved that there was almost a beginning of melting of the platinum. In bridges where several teeth were connected it had been his method to use facings instead of the full carved crown work.

Saturday, April 2nd, Second Day.

GENERAL MEETING.

The general meeting was resumed at 10:30, Dr. L. J. Mitchell occupying the chair.

The first contribution was on "A Case of Voluntary Mal-Occlusion, with Models and Treatment," by Dr. Edmund Rosenthal.

The case is that of a little girl four years of age, a pretty and healthy child who has perfect occlusion when she is eating. She can eat very well and the teeth are normal in every respect, but she has developed a bad habit when she is not at meals. She pushes over the lower jaw on the right side, making a very unsightly appearance, and in that position the jaw rests only upon two teeth, the left central of the lower jaw on the right central of the upper jaw, so much so that those two teeth have been more or less worn down. By that bad custom the jaw is entirely depressed on the left side, there is a real deformity of the lower jaw, and, as a consequence, the condyle has been put out of position so that the child can not open the mouth more than the diameter of my small finger. The question I had to consider was what could be done to prevent such voluntary mal-occlusion. It was a difficult matter to get models and I was only able to obtain a partial model with an impression cup and a little composition. I daresay all the members know how Dr. Martin, of Lyons, works when he has a case in which half the lower jaw has been taken away. He puts in an apparatus for conserving the appearance of the patient, and I have constructed for this child two blades somewhat similar to those used by Dr. Martin, sliding over each other. There were two difficulties, however, to be met with. First, the shortness of the teeth and, secondly, the difficulty of getting the mouth dry. I have instructed the parents to perform a kind of gymnastic with this mouth opener, which I show you. In order to have a strict measure of the quantity of opening obtained, I have had a bar put on the opener so that when it is put into the mouth by the aid of a graduated rule the parents can see what progress is made in the opening. By using the opener three or four times a day and forcing a little, there was an opening after one month of about the width of two fingers. At present the jaw can be opened, but the child has still the bad habit of putting the jaw to one side, and I have come here to ask for advice as to what is to be done.

Dr. George Cunningham

Confessed he was completely puzzled. He remembered long ago a similar case for controlling the movements of the jaw which came under the notice of Dr. Rosenthal's father, and in that case the work was done with a rod working within a tube, but that was not quite so strong as the method adopted in the present case. He suggested that there might be a possibility, despite the shortness of the teeth, of risking screwing the thing in some way, but he was sorry he could not give Dr. Rosenthal any assistance.

DR. MILLARD

Said it seemed to him that the great difficulty at the beginning was that the patient's mouth could not be got sufficiently open to take an impression of the upper and lower teeth, but having accomplished the two-finger opening it might be possible to cover the entire lower teeth with a plate very much after Dr. Coffin's system of regulating, and instead of making the leverage on the left side make it on the right. As the articulation was perfect when the patient was masticating, it was evidently simply a trick, and it might be possible to cover the entire lower teeth and put a sufficient elevator or inclined plane on the opposite side of the mouth to prevent her opening her mouth sufficiently wide to get round to the other side.

DR. W. MITCHELL

Said it had occurred to him that it might or might not be a trick. It was possible that the muscles on the right side might be much stronger than those on the left, causing those on the left to give way. It was also possible that the glenoid cavity might be very flat on the left side, thereby permitting a swinging round of the jaw so as to get a cross or irregular bite, and thus the jaws only rested on two teeth. It might be a good idea to take the pressure of the bite by a dynamometer in order to find out whether she bit harder on the right side or on the left, and by that means determine the strength of the muscles on either side. It might be also possible to effect a compromise. He had himself a case of a lovely girl who had contracted a somewhat similar condition of affairs, so that the median line of the lower jaw was deflected to the extent of one and a half teeth. Instead of the median line being between the two lower centrals, it was half way over the left lateral incisor, thereby producing a protrusion on the right side of the mouth extremely marked. He treated that case by a series of inclined planes, but he had the permanent teeth to help him and could use strong appliances. He had to make appliances in connection with plates so that the patient could attend social functions without anything being noticeable.

DR. W. E. ROYCE

Said children of the age of Dr. Rosenthal's patient were often extremely nervous, though looking very healthy and robust. Children had habits, such as sucking the thumb, which came from pure nervousness. As he understood the case, there was no defect except the result of a habit, and if that habit could be broken up the deformity would cure itself. If it were a patient of his own he should prescribe a course of bromide of potassium, or similar drugs, to see if the habit could not be cured by simply getting the nervous system into a proper state.

DR. R. D. MCBRIDE

Entertained the opinion that it must be some disorder in the condyle or the ramus of the jaw. Strange to say, he possessed a case somewhat analagous, but it was in the skull of a monkey, where there seemed to have been a lack of development which had caused the destruction of the entire condyle. He believed there must be some disorder, either in the lack of development or arrested development of the condyle, or arrested development of one side of the ramus only.

DR. ROSENTHAL

Said that if there was anything the matter with the condyle the child would not be able to masticate at all. When the child was sleeping she was always in the unnatural position, because evidently she felt more comfortable in that way than in the normal condition. He thought himself it was a habit.

DR. C. P. HASELDEN

Asked Dr. Rosenthal whether he thought it possible to put an angle band on the molar on the lower side and on the molar on the upper side on the opposite side of the mouth? He thought the strength of rubber bands attached to hooks soldered on these bands would keep the jaws in position as long as it was needed, and the patient might take the rubber bands away when eating.

DR. NORTHCROFT

Desired to know whether Dr. Rosenthal was well acquainted with the parents of the patient or any of the other relatives, and if there was any tendency toward a prognathous condition in either the parents or any of the relatives.

DR. ROSENTHAL

Said he knew the father and mother, but not the other relatives. The father and mother were quite normal. He thanked the members for the suggestions they had made and said he would certainly try what he could.

The next subject was "Liquid Oxygen in Dental Therapeutics," by Dr. Edmund Rosenthal.

I do not intend to give you the result of a long and personal experience of the use of liquid oxygen in dental therapeutics, as it is only lately that I have introduced this valuable agent into my practice. My desire is to get others to make a trial of it so that our united experience may be compared at a subsequent meeting. A noted surgeon of Berlin, Dr. Therear, was the first to introduce liquid oxygen into Belgium, and he published a report on the subject in 1899. Since that date in his services at the hospital he has used liquid oxygen freely, constantly, and with the greatest success in the treatment of simple carbuncles, anthrous phlegmous, and even in extreme cases of tuberculosis and peritonitis; in a word, in every case where there is infection with the presence of pus containing staphylococci and streptococci. The idea of its use, however, was not original with him. As far back as 1774 the discoverer of this gas founded the greatest hopes on the services it would render to therapeutics, and in 1773 Macquer demonstrated its usefulness in cases of asphyxia by immersion in water or in mephitic gases. It was largely used in common with eucalyptus and guiacol, etc., in the treatment of lung diseases such as dyspnœa, asthma, bronchitis, broncho-pneumonia, etc. It was, however, very difficult to isolate this gas, and the product was so expensive that its use was limited. But lately, for industrial purposes, companies have been formed to produce it on a large scale and at a nominal price. Besides its therapeutic properties for the treatment of asphyxia and lung diseases, liquid oxygen is especially useful as a healing agent. In Zululand it is customary for the natives to treat wounds by exposing themselves on the highest mountains to the purest air, and in Switzerland the peasants know very well that wounds heal more quickly on the summits of the mountains than in the valley. Dr. Stotner attributed the good effect of high altitudes to the oxygen and tried to produce as nearly as possible an artificial atmosphere having the same composition as that utilized by the Zulus. After long and tedious experiments he succeeded in interesting some wealthy benefactors, such as the Baroness Burdett-Coutts and Mr. Francis De Winton in the idea, and in 1897 they opened what was known as the Oxygen House in Fitzroy Square, London.

The originality of Dr. Therear's invention consists chiefly in the introduction, by means of subcutaneous injection, of liquid oxygen directly into the infected region, and in his communication to the Royal Academy of Brussels he says: "It is not necessary to be a brilliant surgeon to know how to use it; the most modest practitioner residing in the smallest village can give his patient the benefit of this simple treatment. It will be sufficient for him to have a steel flask, which is now furnished by the trade, containing compressed oxygen, and to this steel flask he attaches a rubber tube, to which is affixed a needle or a glass tube, the first to be used for subcutaneous injections and the second for inflating infected cavities." The only caution to be adopted is to properly regulate the amount of gas ejected by the needle, and this is easily controllable by placing the needle previously in a tumbler of water, the bubbling giving a perfect guide as to the quantity of gas escaping. The region to be injected must be first rendered aseptic and the needle passed through the flame of a lamp. In the case of a carbuncle, one injection at the base of the tumor will be enough, but in the case of anthrax four or six injections may be needed all round it. It is by the periphery that the infection progresses, and it is from this point that it must be attacked. The doctor lays stress on the rapidity of action of this new mode of treatment for carbuncles and anthrax, the throbbing pain ceasing soon after the injection and the œdematous inflammation being reduced or disappearing within twenty-four hours.

In mining districts the workmen are specially exposed to the attack of a special form of carbuncle, which often incapacitates them from working. By means of these injections Dr. Hermann, since 1902, has cured more than two hundred cases of black carbuncles in as short a time as one or two days, and thus enabled his patients to resume their work in a wonderfully short time.

This liquid oxygen has also been successfully used in cases of mortification by gangrenous processes in the lower limbs and in many infectious diseases has succeeded where all other modes of treatment have failed.

I think I have told you enough to prove that this agent seems to be a useful addition to our dental arsenal. I have experimented with it but a few times, as I am not in the habit of seeing many inflammatory or infectious diseases in my practice. Among the cases treated by me were cases of inflammation due to pyorrhœa alveolaris in an upper third molar. After opening the pulp cavity and disinfecting it, liquid oxygen was injected all round the tooth. There was an increase of swelling to begin with, but the pain was immediately relieved and the swelling abated. I have also used it in a case of difficult eruption of a lower third molar. The patient could hardly open her mouth, owing to the severe inflammation, which began in the auricular region. The neck was stiff and hard; the glandular region infected, the pillars red and enlarged, the tongue covered with a white coating, and the pulse feeble and frequent. The patient was a young lady of twenty and was very much depressed and weak. One injection was sufficient to diminish all these symptoms and to allow the patient to take some solid food, which she had not been able to do for several days.

As I have told you, my experience in this matter is not very great, and if I speak of it at all it is with the hope that it may be taken up by other practitioners who may hereafter contribute results which may be of value to the profession.

The surgeons who have adopted the use of liquid oxygen can not yet formulate a theory based upon microscopic studies as to its mode of action. It does not seem to destroy the staphylococci or streptococci, and so far we may say that its use is more or less empiric. But as investigation is being pressed forward no doubt we shall have, sooner or later, the satisfaction of knowing how well this agent acts upon the pathogenic elements. Its use is rendered easy and cheap by the construction of steel flasks made from one piece of sheet steel without solder. This is of importance, as the oxygen is liquefied at a pressure of 120 atmospheres, and a fault in the flask would lead to a dangerous explosion.

Dr. Aguilar

Asked Dr. Rosenthal whether he had found extreme pain succeeding the application of any injection of oxygen, as he thought enlargement of the tissues produced by the gas would be very painful in cases of inflammation.

Dr. Rosenthal

Said that following the injection there was a little pain, but not very much. As far as that went, he thought the injection of any gas would have the same result. He thought the gas being introduced into the tissue made room for the pus, and relieving the pressure on the tissue relieved the patient. It was probable in that way more than by the direct action of the gas upon the pathogenic elements.

Dr. Aguilar

Asked how the gas escaped from the tissues afterward.

Dr. Rosenthal

Thought that little by little it was absorbed.

Dr. Aguilar

Said that when gas got in the tissue, even air, producing emphysema, it was difficult to release it except by puncture.

Dr. Rosenthal

Said that in that case it was absorbed by the tissues themselves. He called the attention of the members to the importance of liquid oxygen, as it was becoming a very important element in practice, and he thought it would come into general use. He hoped by the next meeting some of the members would have tried it and come forward to compare notes. The flasks might be had at the Deutsch Oxygen Company, of Dusseldorf.

PORCELAIN CLINIC

GIVEN AT THE SCHILLER HALL, RANDOLPH STREET, CHICAGO.
(Rooms of the Chicago Dental Society.)

Saturday, April 30, 1904.

The clinic was very largely attended. It included in addition to Chicago dentists representative men from Iowa, Nebraska, Indiana, Ohio, Missouri, Michigan, and distant parts of Illinois. In the evening nearly forty guests sat down to dinner, Mr. Brewster presiding. The speeches which followed form a very good history of the development of modern porcelain in this country.

REPORT OF THE CLINICS.

Dr. W. T. Reeves

Illustrated the burnishing method for inlays in a central incisor. The cavity was a mesial one, involving the cutting edge. He also made an inlay for a compound cavity in a bicuspid. He showed his method of applying shellac around the margins and half way toward the axial wall, which prevents the foundation body from fusing to the platinum on these surfaces. The space left between the body and the matrix after the first bake was filled in with enamel body of the desired shade. This method obviates the necessity of reburnishing the matrix to the cavity. The baking was done in the Price pyrometer furnace. The fit and contour were perfect, and the baking was very satisfactory. The Doctor also baked several other inlays in the same furnace and expressed himself as being well satisfied with the way it worked.

Dr. Taggart's

Clinic dealt with cavity preparation and the use of porcelain generally. He showed the method of using gum camphor in swaging both gold and platinum matrices, as suggested by Dr. C. C. Allen, of Kansas City. This has Dr. Taggart's hearty endorsement as being a very useful adjunct.

A small piece of gum camphor is put on top of the matrix and burnished with a hard pressure. The camphor possesses the property of staying where it is placed, and yet offers enough resistance to thoroughly swage the thin metal to place. By sticking a sharp tool like an exploring instrument into the camphor, the matrix can be easily handled without fear of distortion. If a gold matrix for low fusing porcelain is used, it is imbedded in asbestos and alcohol, and by the time the alcohol is burned off the camphor has completely disappeared, leaving a perfectly clean surface; if used with a platinum matrix, the camphor is to be burned off in a flame. If blood becomes mixed with camphor, it is best to immerse in alcohol a few moments and thus dissolve the camphor instead of burning it away.

A little experience with this ingenious method soon proves its value in inlay work.

Dr. F. E. Roach

Gave a valuable demonstration of cavity preparation in general, and more particularly the preparation of cavities for large restorations in molars and bicuspids, the particular feature of which is to fully eliminate attenuated margins that are exposed to the forces of mastication. This was obtained by carrying the margins of the cavity slightly beyond the sulci, terminating somewhere between the sulci and the crest of the cusp, thereby leaving the angle of the cavity margin obtuse, and at the same time producing an obtuse angle at the margin of the inlay itself. The wall which is usually cut perpendicular to the long axis of the tooth is cut in this case so that it would represent an angle of about fifteen degrees from the perpendicular.

DR. E. J. PERRY

Made some very interesting experiments in the fusing of porcelain in the Price pyrometer furnace, the object being to ascertain what effect the continuance of a given heat had upon the porcelain, and also what an increase of fifty to one hundred degrees had upon the same porcelain. He conclusively showed the advantage of a means of regulating the amount and continuance of heat upon a given piece of work. The experiments were made with the high fusing, and also with gold matrix porcelains.

DR. F. E. CHEESEMAN'S

Clinic consisted of a practical case of porcelain restoration in a second lower molar, comprising the whole occlusal, mesial, distal and buccal surfaces, and a portion of the lingual. This very extensive restoration is not unusual in his practice. He also showed on a model the restoration of an upper first bicuspid and a lower second molar, the surfaces restored being the buccal and lingual cusps of the one and the mesial, buccal and occluding surfaces of the other; he employed the burnishing method in both cases very successfully. Excellent bakings were made in the Price pyrometer furnace.

DR. R. B. TULLER

Presented a patient for whom he had just inserted an inlay in an upper central incisor, mesio-lingual surface. The adaptation and baking were perfect. The color effect could not be judged, as the tooth had not resumed its natural shade after dehydration. The Doctor exhibited some porcelain teeth made in Brewster's technique mold, one being the restoration of two-thirds of the occlusal of a bicuspid, embracing the lingual cusps and with cavities on both the mesial and distal surfaces. The inlays were baked in the Price pyrometer furnace very successfully. The Doctor also explained his method of fitting the new Brewster detachable post crown to a root, using pure gold which was burnished to the root, and another piece burnished to the crown, and after adjustment the solder was run in between these two surfaces, making an absolutely tight joint and perfect fitting crown, the crown being afterward cemented to place.

Dr. G. W. Schwartz

Gave an excellent clinic on carving porcelain. He used three shades of the new foundation body, commencing with a dark yellow at the cervical, followed by a lighter yellow, and then a blue for the cusps, blending each color with the other. His method of shading proved to be highly satisfactory in the completed molars, and the baking in the Price pyrometer furnace was all that could be desired.

Dr. J. E. Hancock

Constructed a bridge of five teeth in the upper jaw from cuspid to second molar, the latter being a gold shell crown. He explained the valuable features of Brewster's new replacable bridge tooth as applied to posterior bridge work, giving the desirable all-porcelain effect, with an unusual amount of strength. The principle on which this tooth is constructed is that of edgewise metal to resist the stress of mastication, inserted in the strongest part of the tooth. The cavity in the tooth is lined with platinum which gives a bearing for the post and aids in preventing fracture and also accurately defines the aperture in the case of renewals. The Doctor used the swaging press to back the teeth; he also showed the value of the swaging system in inlay work.

Dr. R. C. Brophy

Fused some different porcelains in his perfected No. 2 gasoline furnace, giving very satisfactory results. This was particularly interesting to men who have no electric current at their command. It would appear that Dr. Brophy has now brought gasoline furnaces to a stage of perfection that has not hitherto been obtained.

Dr. Weston A. Price, of Cleveland,

Explained the mechanism of the pyrometer and his new way of winding the furnace to prevent burning out. The uniformity with which the seven pyrometers (which were only just unpacked) worked was very satisfactory, showing that they are not easily damaged in transit or difficult to operate, the bakings being most uniform, although in each case the clinicians were operating them for the first time. The current used was for 110 volts, direct.

Dr. J. S. Bridges

Completed some excellent inlays by the burnishing method.

Dr. B. J. Cigrand

Also showed some new methods in inlay work.

SOME OF THE SPEECHES AT THE DINNER.

Dr. Hacker, of Indianapolis:

Mr. Toastmaster and Gentlemen, I consider this a very successful clinic from an educational point of view. I have followed dentistry for thirty-three years and believe this clinic to be a good illustration of the development of porcelain. I can name gentlemen who think this city is the head of the porcelain art. It is true that Chicago has done a great deal for porcelain, and I believe it will do more. The dentist today who would do porcelain work will find a great deal of his work done for him by Mr. Brewster. Thirty years ago we did not know very much about porcelain. Now the young man has his work mapped out for him; all he needs is faithful application. He should learn to handle porcelain without much trouble with the facilities at hand. I have heard of very few failures in porcelain. In fact, failures should not discourage us, because one can overcome failure by keeping at it all his spare time. Most dentists fall in love with porcelain. It has taken the place of gold work to a large extent; I am speaking more particularly of gold crowns. We should stop using so many gold crowns. I hope you will keep these clinics up; I think it would be a good idea to have one every year. While in one sense this has been a Brewster day, yet each one who has had a part in it has been profited thereby. I feel that I have been well paid for coming.

Dr. Taggart:

Mr. Brewster and Gentlemen of the Profession—I am glad to be here this evening and to end in such a nice way a very unique day in the history of dentistry. Unique, because it is the first time in the history of dentistry when a manufacturer has opened his heart and given us something for nothing. Another commendable feature is that we have had the only exclusive porcelain clinic, to my knowledge, that has ever been given. Our first difficulty in modern porcelain work was to obtain colors, which we tried to get from the Eastern manufacturers, but were unable. Then Mr. Brewster took hold. He was the very first man in this section of the United States to give us variation of colors. Combining his knowledge of what was needed with his splendid ability to supply the need, he has catered to the profession in a most successful way. He made it possible for us to do work and achieve artistic effects that we could not otherwise have done. He has encouraged us to go on to better and higher attainments, and therefore the profession owes him a great debt. He has always been one of us, has attended our dental meetings, taken part in the discussions in our societies, and his ideas are worth something respecting the baking of porcelain. As has been stated, I have employed the time method in baking porcelain exclusively for fourteen years. To illustrate the practicability of this method, a friend called on me at my office the other day and asked me to go to lunch with him. At the time I had just put $250 worth of work into the furnace. I closed the furnace and we both left the office at noon, returning at 1:30. I then took the work out of the furnace, and Dr. Jamieson here will confirm the statement that no porcelain was ever baked nicer than this was. The reason why some furnaces will last longer in the hands of one dentist than another is that the one knows the value of a minute. He never, through careless timing, puts any undue strain on his wire. However, in the introduction of the pyrometer for determining the exact fuse of porcelain, I take off my hat tonight to Dr. Price. He has attained a position that any man may well be proud of. He is away in advance of the time method.

I would also like to pay my tribute to Dr. Haskell. He has been a power in the land to keep porcelain in the profession. He has spared no pains to embellish the porcelain art in prosthetic work. He has showed the possibilities of porcelain in that line. He has inspired us to go on in other lines. In fact, we have lived in a higher atmosphere of porcelain because of Dr. Haskell's efforts.

DR. HASKELL:

Mr. Toastmaster and Gentlemen of the Profession—It is well known to us all here in Chicago that the Columbian Exposition was of no special benefit to Chicago, but in one respect it was a very decided benefit. It brought here Robert Brewster, who came, as perhaps all of you know, to exhibit his manufactures of teeth and also the manufactures of two other houses in England. The result of his coming we have realized today; in fact, you have been doing so for years past. He has been doing more for the advancement of porcelain work than any one else in this country. The latest development in connection with this work we have seen here today in the pyrometer, which is a great invention in this branch, making the baking of porcelain a simple operation.

I began the practice of dentistry in Boston fifty-nine years ago. My first eleven years were devoted largely to the carving, enameling and baking of gum sections for each individual case. Then we used a fire brick furnace with three-inch muffles, using anthracite coal, and usually baked at night. Gradually we came to use coke, later the oil furnace, and subsequently Dr. Custer's electric furnace. This last named furnace was found to be a very practical one, and I consider it to be the best electric oven there is. The difficulty in baking is in ascertaining the exact fuse on account of the electric heat varying. The introduction of Dr. Price's pyrometer will save much trouble and care in this direction. My life has been devoted to artificial dentures. Although I have spent many years in the profession, I can yet work as long and rapidly and accomplish as much in one day as I ever could in my life. It is a great pleasure to me to do what I can to aid young men; I like to give a young man pointers and advise him whenever he wants advice. It has been a great pleasure to have been with you today. I expect to die in harness.

DR. BENTLEY:

Mr. Toastmaster and Gentlemen of the Profession—It is almost unnecessary for me to say anything at this hour, for enough has been said already to last until we have another clinic. However, I want to add my tribute to what has been said of Mr. Brewster for his contribution to the advancement of porcelain as an art in dentistry. Those of us who know Mr. Brewster intimately know that he is one of us at all times. He is interested in anything for the advancement of dentistry. A sufficient indication has been given by others as to Mr. Brewster's contribution to dentistry in the city of Chicago, but aside from this we wish to pay a special compliment to him for his inoffensiveness in pushing the commercial side of dentistry. Many in the profession will thrust themselves and their personalities upon us at the expense of delicacy of feeling in order to advance the commercial aspect. Mr. Brewster's has been an inoffensive aspect entirely. He carefully ascertained the needs of dentistry and then set to work to cater to these needs. We need the commercial men as well as the professional and the scientific men. I consider that he is one of the best contributors to the porcelain art, by virtue of his supplying his technical knowledge. I wish to pay him honor, I wish to compliment him upon the technique of this clinic. It has been conducted with consummate dignity. Nothing has shocked the finer delicacy of feeling of those present at the clinic by the presence of anything for sale. The dignity and manner of conducting this clinic are especially commendable.

I also wish to pay tribute to Dr. Haskell. He was my old teacher in the Chicago College of Dental Surgery. In his faithful application in the interest of the profession, Dr. Haskell has met with many trials and tribulations, some of which are known to me personally. It takes great courage to stand up in the face of these trials and tribulations, but, notwithstanding these obstacles and disadvantages, as he has just said, he proposes to die in harness. He has contributed more than his personal technique to dentistry; he has contributed himself. He has done this at an exceedingly great expense. He has sacrificed personal ambition and opportunity for making money. When Dr. Haskell shall die, no man can pay a higher tribute to him than to say "he died in harness."

My process for baking porcelain has been the time method. My impression was that I could not overbake porcelain, but the introduction of Dr. Price's pyrometer convinces me that I was mistaken. This pyrometer is a pearl that at least should adorn the diadem of our experience by reason of the clinic that we have had today. These gatherings, these clusterings for bringing us together, this brotherhood spirit forebodes nothing but success. When a man like Dr. Price can come all the way from Cleveland, when experts can sacrifice their time and convenience to embellish the porcelain art in the practical way they have today, it conclusively proves that the scientific and the commercial spirit which have characterized this clisic have blended in perfect harmony and thereby graced the profession. I am proud that I am a dentist and doubly proud that I am a Chicago dentist.

Dr. J. Q. Byram, of Indianapolis:

Mr. Toastmaster—I feel it an honor to have been invited to attend the clinic today and to be among the favored few this evening. The many good things I have learned today will be of inestimable value to me. I wish to thank and congratulate Mr. Brewster for the manner in which he has handled this clinic.

There has been a great deal said about Chicago being the hub of the porcelain universe. Why shouldn't it be? Give us a Robert Brewster in Indianapolis and I assure you that Chicago will be located on the tire. Mr. Brewster has done more to place porcelain on a high plane in Chicago than any other man. You can go to him with your failures and he is ever ready and willing to help you. He has helped me through many rough places by giving me many valuable points by correspondence.

I wish to express my appreciation of the porcelain technique system devised by Mr. Brewster. While it was originally intended to be used by students in colleges, any practitioner beginning porcelain work should supply himself with one of these outfits. Too many dentists fail in porcelain work because they are lacking in knowledge of the properties of porcelain, and because they have not mastered the technique of manipulating porcelain bodies. Unless the inexperienced take the time to perfect themselves in this branch of dental art, or before they begin operations in the mouth, they may expect to do as many others have done, give up porcelain and declare that it is not successful.

I wish to congratulate Dr. Price on the results of his long labor. His pyrometer will be of great value to porcelain workers. Dr. Price sent me a photograph of his instrument about four weeks ago and asked my opinion of it. I could tell very little about it from the picture, so I wrote him that it did not look practical, but after seeing a number of instruments in use today I wish to say that I have changed my opinion of the pyrometer, and I believe that it will soon become an adjunct to every well equipped dental office.

As the toastmaster has reminded us that the hour is getting late, and as I always retire early I will give way to the good story tellers.

DR. E. J. PERRY:

Mr. Toastmaster and Gentlemen—I have no story to fit the occasion, but I would like to add my tribute to Mr. Brewster for his interest in porcelain work, for his invaluable service to the dental profession in perfecting the porcelain bodies, enamels, colors, etc., so that the whole could be arranged into a system of practice with definite results. He took hold of this work first, conquered it, and won; all others are imitators; he is one of us, one with us, has always been ready to help us; this is his due.

I also wish to congratulate the profession on the possession of the pyrometer furnace, the invention of Dr. Price. Dr. Price has the credit of devising an instrument of accuracy, which makes the fusing of porcelain an exact art and eliminates the element of chance which has hitherto been the case by all other methods. The pyrometer bears all the earmarks of a great invention and seems to settle for all time a much vexed problem in fusing porcelain.

I also wish to congratulate the profession on the business sagacity of Messrs. Lee Smith & Sons. We welcome that element of commercialism which seeks our good as well as its own.

We can not do without the business man; he, in this case, is one with us and he has set a pace which will be hard to follow. This whole affair has been a success, clinically, professionally and scientifically, and I trust it may also prove so commercially. Gentlemen, I thank you.

Mr. W. L. Smith, of Pittsburg:

I am very proud to be here tonight, gentlemen. I think we have recognized for a long time that Chicago is the headquarters for the porcelain business. However, we have been struggling along in Pittsburg for some little time in this business and have had a reasonable degree of success. Our success in porcelain, I believe, has been due to the fact that we have been surrounded with such men in the field as Mr. Brewster and others who are more clever than we are, more than to our own achievement.

Dr. W. A. Price, of Cleveland:

I esteem it a privilege to have been with you today. I have profited very much by this excellent clinic and noting the results that have been accomplished in porcelain art. I am very glad to have made the acquaintance of those present here tonight, especially of Dr. Haskell, of whom I had heard so often, but whom I first met today. When I was at Ann Arbor I had the privilege of learning something about porcelain by attending a night class under Dr. Dorrance. We employed a coke furnace for baking. Each member of the class helped to bear the expense of the meetings. Our methods for fusing porcelain, etc., was very poor. I wanted to own a furnace.

I could not afford to buy one, so set to work to make one. It required ceaseless painstaking, I can assure you. The difficulties were immense which I had to overcome before this furnace could be put into operation. I am now very proud of my two babies, one of them five years old and the other two years old.

I wish to congratulate Mr. Brewster on the arrangement of this clinic, which marks an epoch in dentistry.

Mr. Robert Brewster:

Gentlemen—It gives me great pleasure to have so many representative men here tonight, and I wish especially to express my thanks to the clinicians who have so generously given their time and energy to make this clinic a success.

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EDITORIAL.

THE INTERNATIONAL MOVEMENT IN DENTISTRY.

It is only within recent years that internationalism has gained any headway in the profession. The first International Dental Congress was held in 1889, and from that time forward the international sentiment has been steadily growing, till now we are beginning to look at dental affairs from a broader point of view than that obtained through merely national interests. The organization of the International Dental Federation at the Paris Congress of 1900 placed international matters upon a firmer and more permanent footing than ever before, and if this movement is perpetuated, as it should be, it will result in immense benefit to dentistry. The two great events at St. Louis this month, the fourth International Dental Congress, preceded by the meeting of the International Dental Federation, may be made the occasion of a most important advance along the line of international progress, and we commend this particular feature of the meetings to the attention of our readers.

The chief value of such events does not relate solely to the scientific knowledge disseminated, great as this may be, but to the broadening out of the individual point of view, and to the community of interest which is developed between the profession of the different nations of the world.

The tendency in the practice of dentistry is toward narrowness of vision, and these international movements are greatly needed to stimulate breadth of thought and take the individual out of his own restricted environment. Let every man go to St. Louis with the idea of studying not only the latest methods of practice but also of observing the representative men of other countries and learning their mode of thought. No nation is, or should be, a law unto itself in the matter of professional progress; no nation holds all there is of good in dentistry, and not till we learn to recognize the good in others can we advance as rapidly as we should ourselves.

THE EDITOR'S DESK.

GONE FISHING.

When the readers of THE DENTAL REVIEW pick up the present issue to look over the advertisements, the editor will in all probability be holding a cedar rod over the edge of a boat, and on this rod will be a line, and at the end of the line a hook with a fish worm on it, and a bit of lead tied to the line about three and a half inches from the hook. And every once in a while, or possibly not quite so often, the editor will suddenly catch his breath and give a spasmodic jerk on the rod and excitedly lift something—or nothing—in the direction of the boat. And then he will put a fresh worm on the hook, spit over the side of the boat (there are no ordinances against spitting where the editor is now) and toss the line into the water again. He will sit with idiotic absorption watching that line till something—or nothing—interferes with it in the bottom of the river, when he will go through the same pantomime performance as before, only varying it with an occasional forceful ejaculation when a fish strikes against the side of the boat and flops back into the water.

And the editor will honestly think he is enjoying it. He will sit there when the fish happen to be busy with something else and do not disturb his hook, and he will look up at the bushes overhanging the bank, and listen to the whip-poor-will—it is mostly in the evening when he goes fishing—and dream the delightful hours away, unmindful of the fact that people ever have the toothache.

And when the shadows settle down and the fish have stopped biting and gone to bed, the editor, with a big straw hat flopping over his shoulders, will paddle back down the winding river under an arch of bushes and trees till he comes to the old landing in the cow pasture.

Then he will trudge up the side hill to the rear of the house, carrying his pail of fish, his tackle, and the sack of straw which he uses for a cushion in the boat. He will go into the woodshed where the pump is and clean his fish by the light of a kerosene lamp, and after rinsing them thoroughly he will pump some cold, fresh water on them, add a pinch of salt, and set them in the pantry window, where it is always cool, till morning.

Then he will go to the little desk in his room and write an article for THE DENTAL REVIEW, and as the crickets are chirping outside his bedroom window he will creep into bed—tired but content. And oh, how he will SLEEP!

DOMESTIC CORRESPONDENCE.

NEW YORK LETTER.

My Dear Mr. Editor:

Another chapter of events in the dental world has just closed, with the adjournment of the 34th annual session of the New Jersey State Dental Society.

The convention was called to order promptly at 10 o'clock on Wednesday, July 20th, by the president, Herbert S. Sutphen, D.D.S., of Newark, N. J. After the usual prayer, the president's annual address was read. It gave a review of the past year's accomplishments and the hopes for the coming years. Unusually few recommendations were made. The paper passed with little discussion. After other routine business the session ended to be reconvened in the evening, leaving the afternoon free to the visitor. Most all in attendance returned to the Auditorium in the afternoon, for the exhibits of manufacturers' products as displayed at Asbury is worth the trip in itself. It is the assembling under one roof of all the good things that the dental depots all over the country bring out. Everything for the office and laboratory from dental chairs, electric lathes and furnaces to floss silk and polishing powders.

High, medium and low fusing porcelain outfits were shown, as well as pyrometers for regulating electric energy or heat, a necessity in inlay work. A new dental powder which liberates hydrogen peroxide upon the addition of water, put out by McKesson & Robbins, was the newest creation in chemics. There were germicidal mouth washes and disinfectants, tooth powders, soaps, $H_2 O_2$ and any quantity of samples. One could fill a trunk with the things that were given away. About seventy exhibitors had space in the largest building of its kind on the Atlantic coast, which implies a great deal.

Wednesday evening session opened with the reading of a paper on the "Treatment of Pyorrhea," by Gordon White, D. D. S., of Nashville, Tenn., which was a good, clear cut, short presentation of his modus operandi, which consists of instrumentation, medication, sanitation, massage, diet and exercise. The most positive removal of all calculus is always imperative. Pockets are washed with pyrozone and finally treated with what the Doctor regards as a panacea in his hands, lactic acid with formalin—four drops to the ounce. The patient is instructed in proper gum massage and diet. The drinking of plenty of water daily, the eating of cornmeal bread, exercise in the open air are all necessary to a cure.

Dr. White pointed out that monkeys when domesticated and other animals when sedentary habits are forced on them acquire pyorrhea. Last but not least, he always shows patients how to clean teeth. For twenty years he has been particularly engrossed in curing this disease, and has had some great successes and some failures; but if the environment and manner of living of patient can be controlled good results will quite positively follow.

Dr. Harlan, lately of Chicago, now of New York, was called upon to open the discussion. After dwelling some on the histology of pyorrhea he took exception to the confusing nomenclature of the disease. Recommendation was made that a committee should be appointed by this society or the National Dental Association to give it proper denomination.

We must also adopt some system of properly educating the people to try to prevent this lesion.

We can repair damage done by caries, or by accident, filling up the spaces, but not one of us can reconstruct loosened teeth after they have lost their attachment.

We must strengthen ourselves on the medical knowledge that will prevent loss of teeth.

Dr. Harlan was asked to say something about the treatment of pyorrhea by electricity, to which he responded that some years ago, he read a paper on the action of the violet ray on oral tissues. It has its place and does excellent work. He also uses the actinic ray as developed through the blue bulb. The treatment consists in applying the heat for intervals of three to five minutes for twenty or twenty-six days except each seventh day. It will cause wonderful changes and does destroy organisms in sockets between tissue and root of tooth.

Dr. Freeman, of New York, put the question to Dr. Harlan, "Could you produce the same results in the same time with medicinal remedies after thorough operating?" Dr. Harlan answered by citing a case. A patient presented with a central incisor and cuspid in much the same condition. One tooth he treated by electric light, the other medicinally. At the end of the month the one treated by electric rays was almost well, the other practically not improved at all.

Dr. Head took the floor and said that he regarded pyorrhea as a filth disease, possibly one-tenth systemic, the other nine-tenths filth. People should "wash and be clean."

He spoke of a treatment recommended by Dr. James Freeman, which was to stuff the pockets as full as they would hold of sulphate of quinine, after cleansing. The bacillus will be excluded, gum will fill in and be reattached. Give the remedy a trial. It works wonders at times.

Dr. Littig indorsed Dr. Gordon White's method, saying that his treatment was practically the same, but that he preferred tri-chlor-acetic acid and then tied the loose to the firm teeth with Chinese grass line, making secure knots between the teeth.

Dr. N. S. Jenkins, of Dresden, Germany, was called upon to discuss Dr. White's paper. He seemed to think that there was only one man whom he felt could treat this disease and he was Dr. Younger.

The thorough removal of all calculus must be done by a God-given specialist. The subsequent treatment is of little importance.

There is an advantage in supporting loose teeth; Dr. Younger used celluloid.

The treatment of this disease requires unlimited patience. It is a surgical miracle—the preservation of some of these teeth.

Thursday morning's session was opened by D. D. Smith, M. D., D. D. S., of Philadelphia, Pa., on the subject of "Six Years' Work in Oral Prophylaxis."

Oral prophylaxis he said had a meaning not well understood. It means the surgical or instrumental treatment. He practiced on members of his own family first, and acknowledged great indebtedness to Dr. Miller. The essayist contended that decay of tooth structure did not begin within the tooth, but at exposed parts. Teeth removed from the mouth at once cease decaying. The removal of "the village water closet" does not stop typhoid.

Good results can only be gotten by removing the infection from the human mouth.

Impeded alveolar development is also cause of pyorrhea alveolaris, and is of momentous importance. Renal diseases and pyorrhea always exist together. Consciously or unconsciously every human being with natural teeth is a sufferer.

Oral prophylactic treatment has the merit of practicability. Orange wood stick and fine pumice are the implements used for cleansing. Some writers recommend brushing the tongue. He has seen a great deal of nonsense but never any worse than that.

Dr. Smith passed about the audience models of a case that was the worst it was ever his fortune to see. The disease is curable. He contended that ten per cent of pyorrhea may have its origin in local infection but not 1/100 comes from constitutional defects.

He said pyorrhea should not be classified as a disease but should be taken from that category. It is a circumscribed inflammation.

"A certain text book tells us that the treatment of this disease should be placed in the hands of a physician. How shameful. I feel indignant that such things should go out in connection with this simple disease. It is a discredit to dentistry."

He also took exception to the contention of some, that the disease was caused by renal disturbances, but that pyrorhea causes renal disturbances. Diabetes is curable by treatment of the mouth. A positive statement, is it not?

The prophylactic brush came in for a goodly share of his vituperation, by saying that it was one of the worst brushes one can use. "No tooth brush does the cleaning, the individual does it. You can not brush away the gums. *They do not touch the teeth.* Here are a lot of brushes I picked up in drug stores, which are almost as bad, but not quite, as the prophylactic. Who ever told salesladies that this or that tooth brush was a good one? Let us compel manufacturers to make a tooth brush that will brush teeth. Time will come when we will cry, 'Eureka,' the discovery of the cause of disease through mouth infection."

Dr. Smith closed his remarks with a tirade against the English people, their filthiness and ignorance as to knowledge or care of the mouth.

Dr. Hofheinz in his remarks stated that his preference as an escharotic for this special work is tri-chlor-acetic acid.

A case was cited of a young woman afflicted with pyorrhea whom he had been treating for some time, with unfavorable results. The teeth were only slightly maloccluded, but another dentist undertook to regulate them, with the result, that the pyorrhea disappeared. Dr. Hofheinz did not believe the slight occlusal change caused the cure, but the mechanical effect upon the peridental membrane.

He was quite enthusiastic over the excellent results obtained by use of the violet ray.

As to Dr. Smith's method he spoke willingly, because he has seen those results in Dr. Smith's office and believes the cleansing so polishes the surfaces as to prevent other accumulations. The gum tissue becomes healthy through stimulation by friction.

Dr. Hofheinz also advanced a good idea as to mouth washes. He has little faith in the regular commercial article but believes alcohol used as strong as possible, is better than any of them.

Upon request of Dr. Smith, Mr. Reeves (one of his patients), addressed the assemblage. He believes in Dr. Smith fully, because he has accomplished so much for him.

Mr. Reeves is quite a young man, say about twenty-five, too young in the writer's estimation to exhibit as a test subject for this malady. We rarely if ever have trouble curing patients at that age. Mr. Reeves stated his willingness to place himself on exhibition.

Dr. B. F. Luckey, of Paterson, N. J., accepted the privilege of the floor and immediately threw down the gauntlet.

He expressed his admiration for Dr. Smith, "but he goes beyond what is right. In his over forceful way he gives these *young* men false impressions. That renal troubles do not take place in individuals with edentulous jaws is a mistake. As to the prophylactic brush, he has no right to assail an article of such merit as that, in the way he did. I use the brush and believe there is nothing on the market to equal it, and until Dr. Smith can come here prepared to give us or even submit to us something better, he should not assail any."

Dr. Luckey also took exception to Dr. Smith's remark that "every human being was a sufferer—dentally." He (Dr. Luckey) was blessed with a good set of teeth which never troubled him, and he believes there are many others.

Dr. Taylor, of Boston, said in discussion, that it was our business to be of service to patrons early in their career; be able to recognize disease in its incipiency and treat it accordingly. "Show me one case where systemic treatment cured the trouble."

The discussion on these papers was continued Thursday morning. The first to gain the floor was Dr. Freeman, of New York, who had in the meanwhile reduced to writing his few remarks. His contention was, that pyorrhea is a systemic disease with local manifestations, which can only be corrected by proper local treatment, instrumentally and medicinally both local and general.

Have these gentlemen ever noted the condition of the teeth of pregnant women?

Can they say that was caused by local conditions?

Dr. G. Lenox Curtis, of New York, said that Dr. Smith had the right idea of first principles of cleanliness and health, but he objected to his assertions not backed up by scientific research, such as renal inferences. Pyorrhea is not a disease. Renal disease manifested in the mouth is a symptom only.

Dr. Curtis figuratively chastised Dr. Smith for his innuendoes against the medical profession, concluding by saying, that it was an imposition for him to keep at a subject more than an hour that should have been presented in twenty minutes.

Dr. Stockton asked Dr. Curtis, If pyorrhea is not a disease what causes it?

Dr. Curtis answered that it arose from syphylis.

This remark acted like the explosion of a bomb in camp, and the discussion became quite hot for awhile. Dr. Curtis remarked finally that it may go back three or four generations.

Dr. Hofheinz, in saying a few more words on the subject, quoted Dr. Register as saying that the cementum was the seat of the disease. Dr. Hofheinz said, "I think the pericementum is the seat of the trouble."

Dr. Register, of Philadelphia, gave some personal experiences with pyorrhea. He felt that he had been the victim of auto-intoxication. His remedy was to have the teeth extracted, since which time he feels better and as several friends have told him since his arrival at Asbury Park, looks better than he did a year ago.

Dr. Stockton was in favor of appropriating money from the treasury of the society to seek the truth in this matter of pyorrhea.

Dr. Shamberg, of Philadelphia, said a physician could not expect to cure renal calculus or bladder calculus by removing the stone. He must do something more.

Dr. Gordon White, in closing discussion on his paper, said he considered the infection automatic.

Dr. D. D. Smith in closing said a young man expressed a beautiful senitment to him just a few hours before. He said, "Your theories are like Wagner's music—for the future."

Thursday evening's session was opened by the reading of a paper by Dr. N. S. Jenkins, of Dresden, on "The Advance of Porcelain Art in Dentistry."

Dr. Joseph Head, of Philadelphia, in discussing Dr. Jenkins' paper paid him many compliments. He said he had great respect and love for him and his fellow workers in porcelain He desired that only the *best* should be accomplished, whether that best be with a high or a low fusing body. He believed the low fusing body had been materially improved, but feels that high fusing has not been backward in getting equal results. Agrees with Dr. Jenkins that inlay work has come to stay. It is as easy for the patient as a gutta-percha or oxy-phosphate filling—hence advisable for invalids, etc., The line of cement has not proven to be the bugaboo expected.

In closing the discussion Dr. Jenkins spoke of the work demanding "accuracy, intelligence and patience," and said the methods can be reduced to exact science. He claims that we are only on the threshold of artistic work, and we should be grateful that we have progressed so far, and so successfully. He enlarged upon the comfort such work gives patients, which former operations with gold never did.

A paper on "Oral Antisepsis—Its Prophylactic Influences Upon Local and General Diseases," was read by H. C. Register, M. D., D. D. S., Philadelphia, which was a resumé of original investigations leading up to present-day asepsis. He described various causes of destruction of gum tissue, interstitial gingivitis, etc. Spoke of septic poisoning from abscessed teeth—referring to a paper read by Dr. Robert Morris, of New York, during the past winter, before the First District Dental Society of N. Y., in which Dr. Morris claimed that many deaths resulted from the extraction of abscessed teeth.

Described the case of some two thousand employes of a match factory, who were entirely free from phosphor necrosis as a result of good care and attention to the teeth. Said that environment has *all* to do with tooth structure. Referred to papers by Drs. Kirk, Kyle, and J. Morgan Howe, on the effect of saliva on teeth, erosion, etc. Defined antisepsis as "the destruction of morbid germs." Enlarged upon oral hygeine and the need for intelligent co-operation on the part of the patient. Said we should have entire care of the mouth from childhood up—closing with a eulogy of the uses of compressed air, and a description of his method of cleansing the teeth. In the discussion, Dr. Chas. Butler said there was so much to agree with that it seemed unwise to select anything to disagree with, but he felt he must object to the elimination of the systemic aspect of the matter. He dwelt at some length on the systemic origin of pyorrhea alveolaris.

Dr. R. M. Sanger, of New Jersey, echoed in the main the remarks of Dr. Butler.

Dr. Wyckoff, of Philadelphia, referring to the extraction of abscessed teeth, said that he had extracted thousands of such teeth and never had any ill results.

Dr. B. F. Luckey, of New Jersey, thanked Dr. Register for his interesting and scientific paper. Said he would not hesitate to remove an abscessed tooth. Referred to great success obtained by Dr. Wilbur F. Dailey in the treatment of diseased conditions of the gum tissue by the use of bicarbonate of soda.

Dr. Kussy spoke of a lozenge which he was having prepared so one could keep up a continual antisepsis in the mouth.

Dr. Jenkins referred to the unnecessary banding of many teeth as a frequent cause of serious irritation. Objected strenuously to the extraction of abscessed teeth on the ground that they ought to be saved. Claimed there was no excuse in this day for the loss of a tooth, merely because an abscess had formed.

Dr. James G. Palmer, of New York, in explanation of the reference to Dr. Morris and extraction of abscessed teeth said that Dr. Morris had qualified his remarks by saying that the cases which came under his observation in hospital practice were from the very lowest classes as a rule, and surroundings were not conducive to healthfulness in any way.

Dr. C. S. Stockton, of New Jersey, described a case where ulceration continued after extraction.

Dr. Register in closing briefly thanked the members for their attention.

Thursday evening at 10:30 a large number, members, guests and exhibitors, about 250—nearly filling the capacious dining room of the "Columbia" sat down to a light luncheon, technically called a "Smoker." After the luncheon, pipes, genuine apple wood—were passed around as souvenirs, presented by one of the exhibitors. Speeches, monologues, music, sleight of hand tricks, followed, until in the "wee sma' hours" of the morning, Dr. W. G. Chase and Harvey Ivedell were "singled out" and presented with substantial evidences of the estimation they are held in by the large number of exhibitors who were under many obligations to these gentlemen of the New Jersey society for assistance.

This year's exhibit was larger than ever and the clinics exceptionally good. It was simply impossible in one day to begin to do justice to this portion of the meeting.

At the closing session Dr. Chas. A. Meeker was elected to succeed himself on the commission (board of examiners) for the full term of five years.

Dr. Chas. S. Butler, chairman of the finance committee of the Fourth International Dental Congress explained many of the workings of the committee, and the especial need for contributions. He said most emphatically that *none* of the money contributed was to be used for banquets, junketing, etc., but to be expended for the actual and necessary expenses attendant upon the congress.

The final business was the election and installing of the new board of officers for the ensuing year.

W. G. Chase, D. D. S., of Princeton, N. J., president; J. E. Duffield, D. D. S., of Camden, N. J., vice-president; Charles A. Meeker, D. D. S., of Newark, N. J., secretary; Dr. Henry A. Hull, New Brunswick, N. J., treasurer. The executive committee: Walter Woolsey, of Elizabeth; M. R. Brinkman, of Hackettstown; T. Star Dunning, of Paterson; N. M. Chitterling, of Bloomfield.

On motion of Dr. Stockton, Drs. Jenkins, Register and Smith were elected to honorary membership.

Adjournment took place soon after noon.

The previous editor of THE DENTAL REVIEW, Dr. A. W. Harlan, for so many years a practitioner of Chicago is now located in New York. We feel that his presence among us is the stimulus that is needed, his reputation for energy and perseverance having preceded him.

He will begin the editing of "The Journal of Oral Surgery and Dental Medicine," January 1, 1905, assisted by Louis C. LeRoy, D. D. S., of New York.

"THE BORROUGHS."

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Adjusting the Rubber Dam:—Ligatures are not necessary to hold rubber dam in one case in a hundred. Turn in the edge at the cervical margin and the dam will remain in place. Patients dislike rubber dam harness such as cloth holders, weights, etc. I threw mine out years ago.

MARK G. MCELHINNEY, Ottawa, Canada.

Avoid Criticism:—When tempted to criticise the work of a brother practitioner, I sometimes remember certain faulty crowns, imperfect fillings and other discreditable performances of weak moments and untoward circumstances. Then I feel myself getting red to the roots of the hair and keep still.

MARK G. MCELHINNEY, Ottawa, Canada.

Repairing a Clasp on a Rubber Plate:—Sometimes a gold clasp can be soldered to its attachment on a rubber plate by suspending the plate in a glass of water and allowing the metal part to project through a hole in a piece of asbestos. This method, although limited in application, will be found useful in some cases.

MARK G. MCELHINNEY, Ottawa, Canada.

Always Retain the Cuspid Roots:—In preparing the mouth for an artificial denture never extract the cuspids unless the upper lip is very short. The cuspid roots are usually easy to fill and can be covered with gold caps that stand flush with the gums. The plate can be fitted over these capped roots. In this way the expression is retained, which could not be reproduced when once these roots are removed.

HOMER ALMON.

Convenient Preparation to Be Used While Operating:—A bottle of glycerine diluted to half strength with rosewater or with water flavored and perfumed is a useful preparation to be kept on hand constantly. Applied to the patient's lips before beginning to operate it will overcome a tendency to become sore. A little of this preparation smeared over the holes in rubber dam facilitates its passage between the teeth and is much less objectionable than soap or vaseline which have been recommended for the purpose.

R. E. SPARKS, Kingston, Ont.

Be Original:—The text books teach certain routine methods for every typical case. The ordinary practitioner follows faithfully each step, whether it be necessary or not. The thinking practitioner will endeavor to avoid every unnecessary movement. The simpler the method the better pleased the patient will be. Unskilled operators rely too much on patent, automatic, electrical appliances, that only scare the patient. The best man is he who can do most with the fewest tools, and after all the most important part of the outfit is a skillful pair of hands.

MARK G. MCELHINNEY, Ottawa, Canada.

Constructing a Base for a Porcelain Crown:—In constructing the platinum base for a porcelain crown if there should not be perfect contact between the post and floor of the cap, platinum and gold foil—as used for filling teeth—may easily be packed into the space and soldered with 25 per cent platinum solder. This method is not meant to be employed as an aid to the careless dentist, but is useful where absolute contact between the post and floor does not exist at all points, and will be a means of avoiding the use of an excess of solder, an error too frequently made in this class of work.

W. H. TWEEDLE, Hopedale, Ill.

Temporary Shell Crown:—When a molar or bicuspid root, after having been prepared for a crown, is found sensitive or rough to the tongue or cheeks, it can be protected by adjusting a thin aluminum band filled with temporary stopping. The band should be well annealed and fitted to the root. It can then be filled with soft gutta-percha or temporary stopping and pressed to position with the thumb and finger. A temporary crown of this kind may be worn for some time and will be found useful to keep the gum out of deep cervical cavities where the permanent crown for some reason can not be adjusted at once. These bands in all sizes can be procured at a low cost.

HOMER ALMON.

Method of Quickly Repairing a Bridge:—When called upon to quickly repair a bridge containing porcelain facings where a band may have split or a crown worn through at the occlusal surface, to avoid investing and unnecessary delay, the following method will be found effective: Clean the bridge thoroughly and wrap securely about the facings a sufficient amount of asbestos fibre to fully protect them. Grasp the bridge at this point with pliers in such manner as to hold the bridge and asbestos securely. Hold the part to be soldered over a Bunsen flame and by careful handling the solder will flow where wanted. Allow parts to cool before removing asbestos and there will be no danger of checking the facings.

LOUIS S. LA PIERRE, South Bend, Ind.

Material for Separating Teeth:—Some years ago a friend handed the writer a piece of separating material which was the very best thing he has ever seen for separating teeth. He has never been able to learn who the originator was, but it is prepared in the following way: Linen tape of the proper width is soaked in thin chlorapercha till it becomes saturated. After the chloroform is evaporated it leaves what is practically a gutta-percha tape, the very toughest and most effective material that has ever been suggested. It does not disintegrate like linen alone, it will remain in place perfectly, and it does not cause irritation to the soft tissues. Its action, while very effectual, is so gradual that patients seldom or never complain of the least discomfort. The originator of so excellent an idea should have due credit for it, and it is hoped that his name may be announced as the result of this article.

MEMORANDA.

THE FAMILY NURSE.

This is the name of a magazine just being started in San Francisco, to be devoted to the interests of the physician, the nurse and the home. It is to have articles by leading physicians and dentists, whose contributions are calculated to interest the general public as well as the professions. The first issue will appear in September, 1904, and we wish the new publication every success.

NATIONAL DENTAL ASSOCIATION.

At some opportune time during the progress of the Congress the N. D. A. will meet for the election of officers and the transaction of whatever business may properly come before the Association. Very likely some changes to the constitution and by-laws will be considered.

Time and place of meeting will be announced at a general session of the Congress. A. H. Peck, Rec. Sec'y.

HARVARD DENTAL ALUMNI ASSOCIATION.

The following officers were elected June 27, 1904, at the thirty-third annual meeting of the Harvard Dental Alumni Association, held at Young's Hotel, Boston, viz: President, Harry S. Parsons, '92, Boston; vice-president, Ned A. Stanley, '84, New Bedford; secretary, Waldo E. Boardman, '86, Boston; treasurer, Harold DeW. Cross, '96, Nashua, N. H. Executive committee: Waldo E. Boardman, '86, chairman ex-officio, Boston; Samuel T. Elliott, '01, for one year, Boston; Walter A. Davis, '01, for two years, Boston. The council is composed of the above named officers.

Waldo E. Boardman, '86, Secretary.

RECENT PATENTS OF INTEREST TO DENTISTS.

762877. Arm rest for dental chairs; Arthur W. Browne, Princebay, N. Y.

763385. Swaging or fitting dental plates; Alvin L. Fisher, New York, N. Y.

763918. Guard for dental tools; Roy L. Magoon, Graceville, Minn.

764528. Artificial denture; Oliver C. Haldeman and J. R. Haldeman, Kansas City, Mo.

763986. Top or closure for tooth-powder bottles or cans or other containers; Henry B. Kent, New Brunswick, N. J.

764022. Dental cuspidor; Henry E. Weber, Canton, Ohio.

765084. Dental matrix; Samuel E. Knowles, San Francisco, Cal.

764871. Dental process; Manley A. Sparks, Huntsville, Ala.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

THE PROPOSED RULES AND REGULATIONS OF THE INTERNATIONAL DENTAL FEDERATION

To be submitted to the Fourth International Dental Congress at St. Louis, Mo.:

Art. I.—The International Dental Federation is an association or universal union of National Dental Societies and those affiliated therewith.

Art. II.—It has for a title "Federation Dentaire Internationale," and is abridged F. D. I.

Art. III.—The International Dental Federation is a permanent International body existing in the interim between International Dental Congresses.

Art. IV.—It is governed by an executive council, composed of delegates representing different countries (receiving appointment from the preceding congress). This council organizes commissions that it deems will be beneficial to advance dental science in all its phases; at the same time it is an advisory committee on international affairs.

Art. V.—The F. D. I. will hold a general meeting preceding the opening of an International Dental Congress.

Art. VI.—The executive council and the diverse commissions will hold annual meetings (time and place to be selected at the close of each meeting).

A. W. Harlan,
Vice-President.

1122 Broadway, New York, Aug. 3, 1904.

F. D. I.

THE INTERNATIONAL DENTAL FEDERATION

will carry out the following program in the Coliseum, St. Louis, on Friday, August 26, at 11 a. m., Dr. Charles Godon presiding: Address of welcome, by Dr. William Conrad, of St. Louis; response, by Dr. Godon; address by a representative of the Louisiana Purchase Exposition; address by the mayor of St. Louis; response by Dr. H. A. Smith, of Cincinnati, Ohio; short addresses by the representatives of the foreign countries present, after which the president's address, Dr. Charles Godon; report by the secretary-general, Dr. E. Sauvez; adjournment, subject to the call of the president.

COMMISSION ON EDUCATION,

Prof. Truman W. Brophy, of Chicago, presiding, will meet in the Coliseum building, St. Louis, Mo., August 26, at 2 p. m. Address by the president, Dr. Brophy; Dr. Charles Godon will give a resume of the status of dental education in France; Dr. William Mitchell, of London, will make some observations on technical education; Dr. Gordon White, of Nashville, Tenn., will make a short address on the present status of dental education in the United States; Dr. R. B. Weiser, of Vienna, Austria, will give an address on education. Drs. H. L. Banzhaf, of Milwaukee; C. N. Johnson, of Chicago; M. W. Foster, of Baltimore, and W. E. Boardman, of Boston, will also read papers before the Commission on Education.

COMMISSION ON HYGIENE AND PUBLIC DENTAL SERVICE,

Prof. W. D. Miller, of Berlin, Germany, presiding. The meeting will convene Friday, August 26, at 2 p. m. Address by Professor Miller on Dental Hygiene in Germany; Dr. George Cunningham, of Cambridge, England, will present a report on Public Dental Service, by the late Dr. J. Franck, of Vienna, Austria, with comments; other papers will be presented by members of the commission; Dr. E. Forberg, of Stockholm, will give a paper on Hygiene and Public Dental Service.

COMMISSION ON INTERNATIONAL DENTAL PRESS,

Dr. E. Forberg, of Stockholm, Sweden, presiding. The meeting will convene Friday, August 26, at 4:30 p. m., in the French building at the Fair grounds. Address by Dr. E. Forberg, president; paper by Dr. A. W. Harlan, of New York, "The Advantages of An International Review." The program for Saturday will be published and distributed early Saturday morning.

Dr. Conrad has secured the use of the French building for the members of the F. D. I., from 4 to 6 p. m., Friday, August 26. The executive council will meet at 6:30 p. m. in the Hotel Jefferson.

Members of the dental profession, affiliated with the dental societies of the United States or in foreign countries, are cordially invited to join any or all of the sections of the International Dental Federation.

On behalf of the Federation. A. W. HARLAN, Vice-President.

No. 1122 Broadway, New York, N. Y., July 19, 1904.

PROGRAM OF THE FOURTH INTERNATIONAL DENTAL CONGRESS.

DEPT. A.—SCIENCE.

Section 1. Anatomy, Physiology, Histology and Microscopy. (*Chairman,* Dr. M. H. CRYER, 1420 Chestnut street, Philadelphia, Pa.)—Florestan Aguilar, Madrid, Spain, "General Anesthesia by Somnoform"; G. G. Campion, Manchester, Eng., "Determining the Actual Path and Extent of Movement of the Mandible Condyle in the Living Subject"; D. E. N. Caush, Brighton, Eng., "Is There Uncalcified Tissue in the Enamel?"; M. H. Cryer (subject to be announced); W. T. Eckley, "Phylogenetic Evidence Regarding the Function of the Accessory Sinuses in Man"; John E. Grevers, Amsterdam, Holland, "Anatomy of the Facial Skull—Normal and in Mouth-breathers"; ———, "Geometrical Construction of the Mandible"; ———, "Behavior of the Teeth Under Polarized Light"; A. Hopewell-Smith, London, Eng. (subject to be announced); Eugene S. Talbot, Chicago, Ill. (subject to be announced); A. H. Thompson, Topeka, Kan., "Ethnographic Odontography: The Mound-builders and the Pre-Indian Peoples of the Mississippi Valley"; J. G. Turner, London, Eng. (subject to be announced); Arthur S. Underwood, London, Eng. (subject to be announced); O. Walkhoff, Munich, Ger., "Concerning the Crania of Diluvial Peoples" (illustrated with lantern slides).

Section II. Etiology, Pathology and Bacteriology. (*Chairman,* Dr. R. H. HOFHEINZ, Chamber of Commerce, Rochester, N. Y.)—C. F. W. Boedecker, Berlin, Ger., "Percussion in Dental Diagnosis"; G. W. Cook, Chicago, Ill., "The Effects of Chemical Agents on Bacteria with Relation to the Saliva"; Samuel A. Hopkins, Boston, Mass., "Application of the Results of Research Work to Daily Practice"; W. H. G. Logan, Chicago, Ill., "A Consideration of Some of the Etiological Factors That Produce Tissue Changes of the Alveolar Process and Overlying Soft Parts"; Jos. P. Michaels, Paris, France, "Sialology: Differential Analyses; Elements of Value in Medical Diagnosis"; W. D. Miller, Berlin, Ger., "Researches Relating to Various Pathological Processes in the Teeth"; Louis Ottofy, Manila, P. I., "Observations on the

Causes of Erosion: (a) Erosio Areca (betel erosion); (b) Erosio Orientalis"; J. D. Patterson, Kansas City, Mo. (subject to be announced); M. L. Rhein, New York, N. Y. (subject to be announced); Oskar Römer, Strasburg, Ger., "Some Pathohistological Observations on Pyorrhea Alveolaris"; D. D. Smith, Philadelphia, Pa., "Pericemental Abscess"; Eugene S. Talbot, Chicago, Ill., "Constitutional Causes of Tooth-Decay"; F. Vincentini, Chieti, Italy, "Leptothrix Racemosa."

Section III. Chemistry and Metallurgy. (*Chairman,* Dr. J. D. HODGEN, 1005 Sutter street, San Francisco, Cal.)—J. P. Buckley, Chicago, Ill., "Chemistry of Pulp-Decomposition"; H. C. Carel, Minneapolis, Minn. (subject to be announced); J. D. Hodgen, San Francisco, Cal., "Chemistry and Dentistry"; Hof-Zahnarzt W. Pfaff, Dresden, Ger., "Das Aluminum und seine Anwendbarkeit in Allgemeinen"; R. W. Simon, Boston, Mass. (subject to be announced); Herbert L. Wheeler, "The Chemistry of Porcelain."

Section IV. Oral Hygiene, Prophylaxis, Materia Medica and Therapeutics and Electro-Therapeutics. (*Chairman,* Dr. A. H. PECK, 92 State street, Chicago, Ill.)—Samuel Taylor Bassett, St. Louis, Mo., "Application of Electro-Therapeutics to Dental Surgery"; L. P. Bethel, Columbus, Ohio, "Some Results from Dental and Oral Prophylaxis"; Julio Endelman, Philadelphia, Pa., "Contribution to the Therapeutics of Post-Extraction Accidents"; Richard Grady, Annapolis, Md., "Oral Hygiene: Mastication"; J. E. Hinkins, Chicago, Ill. (subject to be announced); Edward Hoffmeister, Baltimore, Md., "Materia Medica"; Prof. Dr. Jessen, Strasburg, Dr. Loos, Vienna, and Zahnarzt Georg Schlaeger. I. "Zahn-hygiene in Schule und Heer." II. Eine Wandtafel für den Ausschauungsunterricht in der Schule in Farben, "Gesunde und Kranke Zäahne." III. Eine Wandtafel, ii. Auflage auch farbig, "Die Zâhne und ihre Pfläge"; Weston A. Price, Cleveland, Ohio (subject to be announced); E. Sauvez, Paris, France, "Study of the Various Means of Inducing Local Anesthesia for Extraction of the Teeth"; Zahnarzt Dr. Schaeffer-Stuckert, Frankfort-on-Main, Ger., "Paranephrin Bitsert: a New Preparation of Kidney Atrabilarian in Connection with Local Anesthetics in Dentistry"; Edward Schlinkmann, Baltimore, Md., "Electric Absorption in Therapy"; C. R. Taylor, Streator, Ill. (subject to be announced).

DEPT. B.—APPLIED SCIENCE.

Section V. Oral Surgery. (*Chairman,* Dr. G. V. I. BROWN, 445 Milwaukee street, Milwaukee, Wis.)—Chairman's address, G. V. I. Brown, Milwaukee, Wis., "Oral Surgery: Its Relations to General Surgery and Dentistry"; T. W. Brophy, Chicago, Ill., "Necessity for Early Operation for Cleft Palate"; T. L. Gilmer, Chicago, Ill., "The Teaching of Oral Surgery in Our Dental Schools"; H. H. Grant, Louisville, Ky., "Solid Tumors Involving the Body or Ramus of the Inferior Maxillary Bone"; J. G. Kiernan, Chicago, Ill., "Embryogenetic, Congenital and Acquired Stomato-Neurologic Relations"; A. H. Levings, Milwaukee, Wis., "Importance and Methods of Early Diagnosis of Malignant Growths Affecting the Maxillary Bone"; J. S. Marshall, San Francisco, Cal., "Fractures of the Mandible and Their Treatment"; E. S. Talbot, Chicago, Ill., "Etiology of Cleft Palate and Hare-lip."

Section VI. Orthodontia. (*Chairman,* Dr. EDWARD H. ANGLE, 1023 North Grand avenue, St. Louis, Mo.)—Edward H. Angle, St. Louis, Mo., "Malocclusion: Class II and Its Divisions"; G. V. I. Brown, Milwaukee, Wis. (subject to be announced); L. C. Bryan, Basle, Switzerland, "Nature as a Regulator, and Our Duty as Her Assistants"; Calvin S. Case, Chicago, Ill., "Principles and Methods of Retention in Orthodontia"; M. Chiwaki, Tokio, Japan (subject to be announced); William Slocum Davenport, Paris, France, "Contribution to the Treatment of Short Bite and Jump Bite Cases"; Robert Dunn, San Francisco, Cal., "Mesial Position of the First Molars in Class I"; John E. Grevers, Amsterdam, Holland, "Proposal for an International Nomenclature for the Various Forms of Malocclusion"; Charles A. Hawley, Columbus, Ohio, "Method of Determining the Normal Arch, and Its Application in Orthodontia"; Francisque Martin, Lyons, France, "The Correction of Deformities in Fractures of the Nose"; R. Ottolengui, New York, N. Y., "Spreading the Maxillæ *versus* Spreading the Arch"; W. Booth Pearsall, Dublin, Ireland, "Irish Types of Malocclusion"; Herbert A. Pullen, Buffalo, N. Y. (subject to be announced); Jose J. Rojo, Mexico City, Mex., "Study of the Etiology of Anomalies in Human Teeth"; Dr. Schroeder, Greifswald, Ger., "Prognathous Forms and Their Orthopedic Treatment"; A. Hopewell-Smith, London, Eng. (subject to be announced); J. Sim Wallace, London, Eng., "Nasal Obstructions and Mouth-breathing, with Special Reference to Malocclusion of the Teeth"; S. Merrill Weeks, Philadelphia, Pa. (subject to be announced); Edmund Wuerpel, St. Louis, "Art"; Franz Zeliska, Vienna, Austria (subject to be announced).

Section VII. Operative Dentistry. (*Chairman,* Dr. C. N. JOHNSON, Marshall Field building, Chicago, Ill.)—E. A. Bogue, New York, N. Y. (subject to be announced); James M. Magee, St. Johns, N. B., "The Instrumentation and Filling of Crooked Root-Canals" (illustrated); Sylvester Moyer, Galt, Ont., "The Enamel and Its Consideration in Cavity Preparation"; C. G. Myers, Cleveland, Ohio, "Perdentinal Anesthesia"; Garrett Newkirk, Los Angeles, Cal., "The Whole Question of Matrices and Their Uses"; Frank L. Platt, San Francisco, Cal. (subject to be announced); George C. Poundstone, Chicago, Ill., "The Cement Problem in Inlay Work"; M. L. Rhein, New York, N. Y., "The Specific Gravity of Gold Fillings"; Arthur Scheuer, Teplitz, Austria, "Tin-Cement, Sponge Tin: Two New Filling Materials and Their Uses"; E. K. Wedelstaedt, St. Paul, Minn., "Gold-and-Tin."

Section VIII. Prosthesis. (*Chairman,* Dr. C. R. TURNER, Thirty-third and Locust streets, Philadelphia, Pa.)—L. W. Baker, Boston, Mass. (subject to be announced); George Brunton, Leeds, Eng. (subject to be announced); Reuben C. Brophy, Chicago, Ill., "Rationale of the Use of Materials for Baseplates in the Construction of Artificial Dentures"; Calvin S. Case, Chicago, Ill., "The Mechanical Treatment of Cleft Palate"; Edward G. Christensen, Drommen, Norway, "Which Is the Ideal Crown—the Banded Crown or the Crown Without Band?"; B. J. Cigrand, Chicago, Ill., "Facial Guide Lines as Taught by Artists"; Bernard Frank, Amsterdam, Holland, "A New Articulator on Anatomical Principles"; Hart J. Goslee, Chicago, Ill., "Porcelain Crowns"; F. H. Mamlock, Berlin, Ger., "(a) Ueber Porzellanstiftzähne. (b) Ueber Magnalium Prothesen und ihre Herstellung nach Dr. Eug. Müllerschen Gummidrucksystem"; Francisque Martin, Lyons, France, "Immediate Prosthesis after the Method of Dr. Claude Martin"; Joseph Nolin, Montreal, Can., "The Decline of Estheticism in Prosthesis"; B. Platschick, Paris, France, "(a) Influence de Fauchard sur la Prothése dentaire. (b) Les dents à tube en géneral et leur emploi special pour les pièces à gencive continue. (c) Contribution à l'étude des Couronnes"; James H. Prothero, Chicago, Ill. (subject to be announced); Rudolph Weiser, Vienna, Austria, "Some Cases Illustrating the Possibilities of Prosthetic Dentistry"; E. Lloyd Williams, London, Eng. (subject to be announced); George H. Wilson, Cleveland, Ohio (subject to be announced).

Section IX. Education, Nomenclature, Literature and History. (*Chairman,* Dr. TRUMAN W. BROPHY, Marshall Field building, Chicago, Ill.)—M. Chiwaki, Tokio, Japan, "Dentistry in Japan"; Ch. Godon, Paris, France, "Educational Standards of Europe"; S. H. Guilford, Philadelphia, Pa., "Nomenclature"; A. W. Harlan, New York, N. Y., "Dental Literature"; A. O. Hunt, Omaha, Neb., "The Count System of Students' Credits"; Charles McManus, Hartford, Conn., "International Character of the Early Development of Dentistry in America"; Louis Ottofy, Manila, P. I. (subject to be announced); Jose J. Rojo, City of Mexico, Mex., "Historical Annotations and

Present Condition of Dental Education in the City of Mexico"; B. L. Thorpe, St. Louis, Mo., "History of American Dentistry"; James Truman, Philadelphia, Pa., "A Practical View of Education."

Section X. Legislation. (*Chairman,* Dr. WILLIAM CARR, 35 West Forty-sixth street, New York, N. Y.—Not received.

CLINICS.

(Reports for the East and South have not yet been received.)

Porcelain—C. C. Allen, Kansas City, Mo.; W. V-B. Ames, Chicago, Ill.; E. H. Ball, Tama, Iowa; F. E. Cheeseman, Chicago, Ill.; W. A. Coston, Ft. Scott, Kan.; W. H. Cudworth, Milwaukee, Wis.; A. W. Dana, Burlington, Iowa; S. F. Duncan, Joliet, Ill.; Adam Flickinger, St. Louis, Mo.; V. H. Frederick, St. Louis, Mo.; H. J. Goslee, Chicago, Ill.; F. B. James, Wilton Junction, Iowa; Robert LeCron, St. Louis, Mo.; L. A. Meyer, Oconomowoc, Wis.; J. E. Nyman, Chicago, Ill.; W. T. Reeves, Chicago, Ill.; W. H. Taggart, Chicago, Ill.; C. N. Thompson, Chicago, Ill.; J. E. Wait, Superior, Neb.; C. M. Work, Ottumwa, Iowa.

Gold Inlays—F. T. Breene, Iowa City, Iowa; O. H. Simpson, Dodge City, Kan.; C. N. Thompson, Chicago, Ill.; W. F. Whalen, Peoria, Ill.; C. H. Wright, Chicago, Ill.

Surgery—T. W. Brophy, Chicago, Ill.; T. L. Gilmer, Chicago, Ill.; G. D. Moyer, Montevideo, Minn.

Gold Fillings—A. G. Fee, Superior, Wis.; F. O. Hetrick, Ottawa, Can.; J. G. Pfaff, St. Louis, Mo.; C. H. Seeger, Manitowoc, Wis.; F. G. Van Stratum, Hurley, Wis.; J. W. Wick, St. Louis, Mo. (G. V. Black Club); S. Bond, Anoka, Minn.; K. E. Carlson, St. Paul, Minn.; W. R. Clack, Clear Lake, Iowa; J. V. Conzett, Dubuque, Iowa; Wm. Finn, Cedar Rapids, Iowa; S. R. Holden, Duluth, Minn; A. M. Lewis, Austin, Minn.; J. B. Pherrin, Central City, Iowa; G. A. Rawlings, Bismarck, N. D.; A. J. Schlueter, Aberdeen, S. D.; A. C. Searl, Owatonna, Minn.; J. F. Wallace, Canton, Mo.; E. K. Wedelstaedt, St. Paul, Minn.; R. B. Wilson, St. Paul, Minn.

Gold Crowns—J. G. Hollingsworth, Kansas City, Mo.; C. M. Work, Ottumwa, Iowa.

Pyorrhea Alveolaris—W. H. G. Logan, Chicago, Ill.; O. H. Manhard, St. Louis, Mo.; G. R. Richter, Milwaukee, Wis.; C. R. Taylor, Streator, Ill.

Extracting—J. W. Slonaker, Chicago, Ill.

Miscellaneous—H. F. Cassel, St. Louis, Mo. (striking up partial gold plate with swaged enforcement single thickness gold); W. L. Ellerbeck, Salt Lake City, Utah (electric furnace construction); Otto J. Fruth, St. Louis, Mo. (replantation with porcelain restoration); R. R. Johnson, Great Falls, Neb. (artificial velum and obturator); Elgin MaWhinney, Chicago, Ill. (new drugs; valuable old ones; with therapeutics and indications for uses); T. W. Pritchett, Whitehall, Ill. (Bonwill method of articulating full dentures); J. B. Ridout, St. Paul, Minn. (new method of backing facings for Richmond crowns; new method of making continuous gum plate; method of putting gold corner or filling in porcelain tooth); H. A. Shannon, Lincoln, Neb. (esthetic crowns and dummies); C. O. Simpson, St. Louis, Mo. (demonstrating strength and durability of amalgams and cements); G. D. Sitherwood, Bloomington, Ill. (soldering bands and fixtures; gold plating and adjusting); W. R. Smith, Pawnee City, Neb. (prosthetic); Richard Summa, St. Louis, Mo. (practical application of Angle fracture band); S. H. Voyles St. Louis, Mo. (saddle bridge; pinless teeth); E. R. Warner, Denver, Colo. (masticating force of human jaws, demonstrated by appliances).

Subjects Not Given—C. S. Case, Chicago, Ill.; W. D. James, Tracy, Minn.; F. E. Roach, Chicago, Ill.; James Weirick, St. Paul, Minn.

EXHIBITORS.

The following manufacturers and dealers have reserved space up to date: The S. S. White Dental Manufacturing Co., Claudius Ash & Sons (Ltd.), H. D. Justi & Son, Kress & Owen Co. ("Glyco-Thymoline), J. W. Ivory (specialties), Oakland Chemical Co., American Cabinet Co., Ransom & Randolph Co., Ammonol Co., John T. Nolde Dental Manufacturing Co., Hisey Manufacturing Co., E. De Trey & Sons, Johnson & Johnson, Detroit Dental Mfg. Co., Harvard Co., Lee S. Smith & Son, Sanitol Chemical Laboratory Co., John T. Milliken Co., S. Eldred Gilbert Dental Manufacturing Co., Ritter Dental Manufacturing Co., Young Dental Manufacturing Co., McKesson & Robbins Chemical Co., Dentists' Supply Co., Pinches & Ely (specialties), Frink & Young, W. V-B. Ames, A. C. Clark & Co., Horlick's Food Co., Charles H. Phillips Chemical Co., Whiteside Dental Manufacturing Co., Klewe & Co. (Jenkins porcelain), R. C. Brophy, L. O. Green, L. D. Caulk, Dutro & Hewitt, Blair Dental Manufacturing Co., Peroxident Chemical Co., Goldsmith Bros., Adrian Rutherford.

Note.—The United States Government will make an exhibit consisting of a complete dental outfit as furnished to the members of the Army Dental Corps.

OBITUARY.

DR. EMERY R. AUSTEN.

Dr. Austen, of Monticello, Ind., died at Jones, Mich., May 26, 1904, of cerebro spinal meningitis, just a week after his marriage. He was born at Williamsville, Mich., February 17, 1877; entered the scientific course of study at Michigan Agricultural College in 1894, spending three years of faithful and very successful work here. In 1897 he entered Northwestern University, and here took up the study of his chosen profession. After spending two years here he decided to broaden his education by spending his senior year at the University of Michigan. While at the U. of M. he had the best graces of the entire faculty and student body on account of his great ability and congenialty. Dr. Austen was a member of Delta Sigma Delta, having been associated with both Alpha and Eta chapters; always active in fraternity circles as was he in all of his college connections. He was married May 18, 1904, at Jones, Mich., to Miss Vera O'Dell, hence leaves a wife, one sister and a host of friends in the profession to mourn his untimely death. A. B. McVay.

THE "PAGE FILLER."

When the artless, heartless printer
With his "make-ups" and his forms,
Sends a shiver through your vitals
Worse than all of winter's storms,

By the telephonic message
At the hour of ten or 'leven
That the pages are uneven
Should end in eight instead of seven.

Calmly asks another "filler,"
So the "book" will come out right,
Then's the time you're undecided
Whether you should pray or fight.

Printer seems to think you've always
Got precisely what he wants,
Measures "copy" with a yard stick
In a way that nags and haunts,

Quite as if a rack-brained writer
Always had his thoughts on tap;
Turned a spigot in his think-tank,
Just to 'pease the printer's yap.

Hard the road an o'erworked mortal
Called the editor must tread,
When the "devil" of a printer
Holds this club above his head.

"Just a page"—it sounds so easy,
Only takes a little bit;
But the trouble is to furnish
Just enough to make it fit.

Rummage through your notes and papers,
Try to find the piece you need.
Must be something short and snappy
Like subscribers want to read.

Give it up in desperation,
No such article I vow.
Seize a pen and write the "filler,"
That's what I am doing now.

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AN ESTIMATE OF PORCELAIN AS A FILLING MATERIAL.*

BY C. N. THOMPSON, D. D. S., CHICAGO, ILL.

The tendency of the age is specialization; even dentistry has been justly divided into operative and prosthetic. Recently these have been subdivided into specialties. The oral surgeon and orthodontist are almost necessary departures. But not so with those whose specialty may be crown and bridge work, either porcelain or gold, or who may specialize along the line of some certain material or method for filling teeth; for if his specialty is anything more than name only, he is not doing his patrons the greatest good, because, having specialized along one line, it is apt to become second nature for him to attempt to apply it to all cases, overlooking other possibilities. It is in the wise use of all the proven good materials at one's disposal, which makes a man more serviceable to his patrons than were he to depend upon one or two. Fads come and go, leaving behind that which proves valuable. Amalgams and cements have had their day and have found their level; porcelain has passed the zenith of general attention, and is settled into its place as one of our best filling materials for certain cases.

Estimates are usually made by comparisons, and are really but a forecast based on experience or statistics. The definition of the word "A valuing or rating by the mind without actually measuring," foretells that we are not expected to have any conclusive facts upon which to base calculations in attempting to place a value upon the material under consideration: if we had, an estimate would be uncalled for.

Our experience with porcelain on a past record of about ten years.

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*Read before the Chicago Dental Society, April, 1904.

has taught us much in its manipulation, but not enough to warrant its general use as a permanent filling, because any filling that is to be (so-called) permanent, should last at least that long to be worthy of the name. Statistics in the form of carefully recorded ledgers with accurately marked diagrams prove of little value, because subsequent examinations are uncertain and infrequent; and when it is remembered that we have not had porcelain of real merit until very recently, it will be seen that the best that we can do is to base our calculations upon the present condition of fillings that are still doing service after a more or less extended exposure to the conditions found in actual use in the mouth.

In consulting records and notes, it became noticeable in the history of these fillings, that margins on occluding surfaces were failing because they lack edge strength, but that fillings on axial surfaces were holding their own. This naturally led to a decrease in the former and an increase in the latter, until now there is but little recorded relative to occluding fillings except as seen on incisal edges of the anterior teeth. But all thorough examinations with the magnifying glass of any strictly occluding filling of porcelain that had been in use long enough to wear out the cement at the margins, invariably showed chipped margins in proportion to the time that the filling had been exposed to masticating or occluding wear. This without an exception.

From this standpoint, it would seem that much that has been recommended recently relative to its use in all cases is illogical, and that its field does not extend into occluding cavities, except in the anterior teeth where its natural appearance overshadows its frailties.

Its general use has been so strenuously advocated recently that in the light of the foregoing it would seem an oversight to pass the subject without calling attention to the unsound logic voiced.

We are informed by some that porcelain should be used in all cases, and that those who do not, refrain only because they lack the skill. Never was there a more grievous mistake in either case, for porcelain itself is not durable enough for all conditions, even in the anterior teeth; and in the second place, many operators who are skilled to the last degree in its manipulation, deny its use in posterior occluding cavities.

It is said—and it may be true—that porcelain extremists are men whose gold fillings are not proving successful, and that they in following the usual course of cause and effect, unwittingly assume that what proves best for them must be good for all, forgetting that the mote which is all their own prevents them from correctly interpreting the signs of the times as written by the marginal failings of porcelain fillings at their own hands.

It might be well to let unsound sayings pass, knowing well that whatever we write in our books today comes before the stern tribunal of time, which will review and stamp justly; but there are many just starting in this line who, taking their cue from the extremists' standpoint, try the to them impossible, and fail—not because they were naturally lacking either mechanically or in the artistic, but because their instruction was unsound.

Enthusiasm in almost any line is necessary for success. To be enthusiastic in the beginning insures success finally. It is what keeps us from falling by the wayside. But there are as many degrees of enthusiasm as of other things, varying from passiveness to extremes. The enthusiastic porcelain worker is one who thoroughly appreciates its virtues and is alive to its frailties, using it wherever edge strength is not an important factor.

The extremist honestly considers it applicable in all cases, to the exclusion of other materials, and is like unto him who rode his employer's valuable horse to death to show its endurance; valuable only as an extreme example.

To beginners it might be said that there is reason to believe that all ordinarily skillful dentists could as easily acquire the skill to acceptably manipulate porcelain as gold, and that the reason why so many fail is because they make no determined, well planned effort to inform themselves. The same amount of time and pains applied to it as was spent in learning to manipulate gold foil would, on account of previous training, be more than ample for an actual beginning in the mouth, provided too much was not attempted at the outset. This is provided that all have perfect vision, and in this connection it might be mentioned that statistics secured by railway companies relative to the eyesight of those applying for positions, show that about 5 per cent of the eyes examined were color deficient or color blind. Such defect in the eyes of a dentist would preclude all possibilty of succeeding, and should incapacitate him for many other departments of dentistry.

The dental profession has accepted porcelain as one of the desirable fillings materials, but because we have accepted it, we have by no means swallowed it whole as a panacea for all ills dental. It is not now a question of fitting and matching this material to the cavity and the tooth. Many can do either or both with success. The vital point is that the inherent weakness of the material itself is so far below gold in one particular—that of edge strength—that it ought never to be exposed to severe occluding strains, unless all concerned are satisfied with its lack of permanency and gradually increasing doubtful condition.

In comparing it with large gold foil fillings, it is now safe to say that the only point of superiority in favor of the latter is in edge strength. In every other way porcelain is better, and in some ways vastly so. But the matter of edge strength is of such great importance that at times it alone amounts to enough to warrant the use of gold in the anterior teeth to the exclusion of porcelain, and in the posterior teeth beyond the lines of vision in occluding cavities, porcelain is never indicated.

The points of superiority of porcelain over gold seem to be at least four, viz.: natural appearance, resistance to thermal action, glaze and ease of insertion.

Regarding appearance, of course there is no comparison. All justly concede that porcelain is vastly superior, and this is its most recommendable feature, and it should, with all its frailties, be used in the six anterior teeth, except where the tooth in question is very thin, with a wearing underbite, or where the occlusion is direct and heavy. This does not alter the fact that nearly all cavities can be filled with porcelain, provided that the patient fully understands the risk and the operator wishes to accept the chances.

Resistance to thermal changes is also in favor of porcelain, proving slightly better even than gold inlays, and infinitely better than gold foil fillings, even though underlaid with cement.

Glaze or polish is also vastly in favor of the material in question. It is now considered one of the greatest factors in preventing recurrent caries near the margins of these fillings. Gold at even its highest finish does not begin to compare with it.

Ease of insertion, compared with large gold foil fillings, is also vastly in favor of porcelain; but in comparison with gold inlays it has no advantage. Gold foil fillings in lingual pit cavities in incisors, and in pit and fissure cavities in bicuspids and molars have the advantage of being more quickly inserted, and in the latter instance, more durable. Small porcelain fillings usually consume much time and are difficult to manipulate accurately.

When our porcelain compares favorably with gold, as regards edge strength, we may justly begin to use it promiscuously in large cavities. Until then, we will have use for our pluggers.

These fillings seldom break or crush. The weakness of all our porcelain today is lack of edge strength—a tendency to chip or crack away at the margins when exposed to stress. This, of course, is present at the incisal margins of all proximo incisal fillings, but can be overlooked when its other virtues are understood. All chipping of margins is due, in part, to the indifferent way in which the cement supports it at that point, and would not occur so disastrously if the cement were stable.

Repeated examinations of well fitted fillings in proximo occlusal cavities showed a rapid diminution of the cement on the occlusal surfaces as far as reached by masticating wear. Beyond that point the disintegration was slow and ceased entirely when about a line below the axial surface. The magnifying glass showed at first only increasing absence of cement at the margins on the occluding surface; later the margins of both filling and tooth enamel began to chip away, thus opening new access to the cement, the absence of which created new opportunities for chipping, which is logically a progressive weakness and means that porcelain is not indicated in such a cavity. A gold inlay in the same cavity would, judging from similar cases so treated, have been practically unchanged. There is no doubt but that cement is the correct method of filling teeth and is our hope for the future, but its present efficiency is so low that by itself it amounts almost to a farce. But teeth filled with any desirable, accurately fitted material cemented to its cavity, is beyond a doubt good practice, the mission of the cement being four-fold: retaining, supporting, sealing and non-conducting; and when used as in gold inlays, where it is possible to burnish the filling margins while the cement is yet plastic, it is possible to close the margin, sealing the cement in.

Next to a porcelain with a sufficient edge strength, our greatest need is a more durable cement, and it seems now the most insurmountable obstacle. It may be, however, that when the cement does appear, porcelain will no longer be needed.

Aside from the tendency to vacate the space between the cavity and filling, the opacity of the cement proves a great hindrance to concealing the union between the two. Fillings that appear an exact match previous to being cemented to place, are sometimes destroyed by its effect in this way.

Cavity preparation in the anterior teeth for porcelain, compared with that for gold, is at a disadvantage, because the incisal enamel margins must be left sharp, which is not mechanically sound practice, even though absolutely fitted, because it will chip if exposed to stress. And if beveled margins are necessary in order to make them safe, then cavity margin preparation for porcelain is a weakness in itself not present when beveled, as for gold, in any form.

Aside from this, cavity preparations for porcelain seems somewhat less destructive of tooth substance, because, while there are just as definite lines to follow, the adhesive setting modifies the need for deep or extensive undercuts in the dentine for retention.

Anterior teeth, with frail labial enamel can, owing to the supporting setting of the filling, be prepared without cutting extensively, unless desirable. For the same reason, frail incisal corners, resulting from extensive proximal cavities, can and should be retained far beyond that point thought safe for gold.

Extensive cavity formation for any material in the six anterior teeth is continually menaced by the tendency of the tooth to chip along the developmental lines of confluence, which are marked by line-like depressions labio-lingually across the cutting edge between the three little tubercles found on recently erupted incisors. These lines divide the incisal two-thirds of the tooth crown into three lobes. Calcification begins in these lobes separately and the grooves or lines are the marks of the after confluence of these lobes. Just why teeth split along these lines is a question, but that they do is beyond a doubt a fact, and one that accounts for many failures. But it is of little import when preparing for adhesive fillings, except when the incisal cavity outline approaches it closely, when the cavity must be extended to or just beyond it, for if left thin, it sometimes breaks away, leaving a decided notch between the filling and the balance of the tooth.

Porcelain does not last well in cavities resulting from chemical erosion, unless they are extended well beyond the limits of chemical action, which, owing to the hypersensitiveness of cavities, is seldom accomplished; the significance of which is that porcelain is not often indicated in such cavity.

Cavity preparation for this material in the posterior teeth is another problem, because if the margins are not to be exposed on occluding surfaces, then the entire coronal surface shall be removed and the margins carried out into the axial surfaces far enough down to make room for porcelain thick enough to stand. This formation can be modified in molars somewhat, in favorable cases, by secreting the margins near the fissures where they are to be protected by surrounding cusps and prominences. In bicuspids, the margins that naturally fall near cusp points are unsafe, but less so if the entire cusp point is replaced by porcelain of considerable depth, thus placing the margin on the descending slope, which gives the filling at that point a strong marginal corner.

Proximo occlusal cavities in bicuspids and molars, owing to the fact that the filling must be inserted from the top and in one piece, demand considerable broadening at that point, not necessary in preparation for gold.

Matters of cavity preparation for this material are by some considered unimportant, but a careful, unbiased study of the subject will show that as a mechanical problem it is good practice as a guide to prove the filling accurately seated when cementing to place. Retention grooves are also decried, but when it is remembered that the greater cement surface there is in proportion to the size of the filling, it will be seeen that their adoption will increase the cement area and retention, and this is not taking into consideration the possibilities of interlocking the grooves and prominences.

The object in calling attention to the porcelain bodies on the market is to bring out their shortcomings, and if possible select that which is necessary to produce the best filling. The successful construction of porcelain inlays depends materially upon the physical properties of the material at hand, such as density, edge strength, fusing point, translucency and shrinkage.

There is none on the market that excels in all these. All are being used, however, and perhaps all have merit, but none are equal to what they could be if the manufacturers, with perhaps two exceptions, would note our needs.

True fusion means the point at which porcelain attains its greatest density or strength. The outfits that arrive at this point before they glaze should have a low fusing enamel color to fuse over them as a glaze. Those bodies that come to full glaze before they come to greatest density are entirely unfit for inlay work at all by themselves, because they lose form in fusing, and being fused clear through, shrink to a common center, distorting still further. Either of the above will not produce true to life.

The true method of making these restorations has often been described, but may stand repeating. The plan referred to is to use quite high fusing bodies that do not glaze well at greatest strength to give form and outline, and is not to be refused at subsequent bakings. On to and over this fuse lower fusing bodies in layers for shade, thus going one step further without losing form or distorting matrix. Over this fuse still lower fusing enamel colored body for the translucent glaze. There are two outfits on the market based on this plan. All of the others manufactured are of one fusing point throughout, and are therefore a stumbling block to progress for all concerned. And unless a dentist in this work can be satisfied with the outfits that embody the plan mentioned, he is compelled to use a portion of two or more outfits to arrive at the same conclusion.

For instance, for the form or foundation bodies, use Close high-fusing yellow and white; for the colors use any of the high-fusing inlay outfits, i. e., White's Consolidated or Brewster's enamel colors; and for the glaze, use any lower fusing body that is like tooth enamel, as Brewster's XX. This will produce fillings that are true to form, shade and fit.

MATCHING SHADES.

Owing to the physical difference between our porcelains and the human tooth, the possibility of absolutely reproducing lost parts is remote. No man, be he ever so expert, even with the exercise of the most scrupulous care, can exactly and certainly duplicate any lost part. The result may be good, but all that he can be sure of is a close approximation in shade, and this is best secured in beginning by reproducing the several parts of the reproduction in their order, starting at the base or dentine first, over which lay thin layers of pronounced enamel shades and last, a normal thickness of true enamel colored body.

The limitation, therefore, of porcelain is not governed by the ability of the operator entirely, but rather by the resistive properties of the material itself, combined with the uncertainties of the cements, which gives it a distinct field.

In all large cavities not exposed to occluding stress, considering all its virtues, it is superior to gold. In occluding cavities in the anterior teeth its natural appearance is of such great importance that it alone is sufficient to warrant its use in nearly all cases. In proximo-occlusal cavities in bicuspids and molars within the lines of vision, it may be used in favorable cases, provided all concerned understand its frailties.

In all large occluding cavities beyond the lines of vision, gold with its great edge strength, in the form of inlays, is logically correct, to the entire exclusion of porcelain; and in connection with this it should be stated that proximo-occlusal cavities within the lines of vision, that have exceedingly frail buccal enamel, can be successfully filled with gold inlays by first reinforcing it with cement and allowing the filling to protect the edges. In this way it is possible to securely fill very many badly decayed posterior teeth with gold inlays, without allowing the metal to appear on the buccal surfaces to the extent that would be thought necessary for gold foil fillings.

PROSTHETIC PORCELAIN.*

BY N. S. JENKINS, D. D. S., DRESDEN.

From the very beginning of my experiments I have been accustomed to come periodically before this society to report what progress I have made in adapting porcelain to dental purposes. Last year, at Madrid, I announced the discovery of a prosthetic porcelain which seemed to me to have qualities of great value. This year I beg to present to you the perfected product, together with illustrations of its practical efficiency.

This new body is designed to be used with artificial teeth and is not intended for inlay purposes. It melts well within the fusing point of gold. This is a matter of great importance. It is comparatively easy to make a dental porcelain which fuses above the melting point of gold, but such a body renders the use of pure gold solder inadvisable, and a body which fuses below, but still very near the gold fusing point, can only be employed with gold solder under hampering precautions. It is, of course, quite possible to use a platinum gold solder, which gives security from some disasters, but it is easier to use pure gold and in the case of English teeth, which are of great importance for crown and bridge work, a solder melting at a higher point than pure gold can not be employed. Prosthetic porcelain unites perfectly well with any artificial teeth; indeed, its union is so close that the body of the tooth will break under the hammer before it will lose its new attachment. It is very strong, affording a basis to which a small section of a tooth can be united without danger of fracture and, in cases of a close bite, it permits porcelain restoration where such restoration would formerly have been impossible. It completely obviates the necessity of disfiguring the mouth with the gleam of gold in crowns and bridges and, by its use, the cleanest and most natural work can be made, and that with mathematical accuracy. Short, or deeply imbedded roots can, if reasonably firm, be utilized to great advantage by its judicious application. In fact, it enables the skillful and patient operator to achieve results vastly superior to any hitherto attainable, for it gives him a material which can be carried into any deep depression, crevice or corner; which can be molded to any desired shape; which gives any desired color; which sustains any desired pressure, and which permits of grinding and subsequent polishing, because of its great density. Its evolution has been by deductive process and accomplished only through exact, laborious and unremitting experiment and its manufacture is even more elaborate than that of porcelain enamel for inlays.

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*Read before the American Dental Society of Europe.

The specimens I present are not of hypothetical cases, but duplicates of operations in my own practice, from which you can yourselves judge of the practical value of this new material.

You are all familiar with continuous gum work and know how difficult it has been, under the old methods, to avoid cracks, blow holes and bubbles, especially at the margins. If you will examine the specimens with a magnifying glass, you will observe that the prosthetic porcelain melts solidly down to the finest edges, being as free from porosity at the margins of the platinum as in the center of the piece. This result is always obtainable, because this porcelain has been reduced to manageable proportions. It is only an expert, and, even he, but through unfailing watchfulness and infallible judgment, who can produce such results with a porcelain so undeveloped that it can be melted only at a high temperature; but with this body the general practitioner can safely essay these operations, since there is no step of the process which is not under perfect control.

I pass over the ordinary procedure, except to remark that, in my opinion, the covering of the lingual surface of an upper denture with porcelain is undesirable. The great objection to this beautiful and cleanly work in the upper jaw is its weight. By using platinum, alloyed with 10 per cent of irridium, a thin but very stiff plate can be stamped. Of course, it requires care and time, but with sharp dies, an accurate fit is always obtainable. If, then, a still thinner rim is soldered labially and lingually to the plate, leaving space sufficient to solder the teeth in their places and allowing room enough for prosthetic porcelain to flow, a comparatively light denture may be constructed and yet one so strong, that there is no necessity for covering the lingual surface with porcelain.

Four packings and meltings are necessary to fill out and unite the different portions of the skeleton, for the office of this porcelain is chiefly to build out and to support, not primarily to furnish an uncertain and, at best, somewhat imperfect representation of the natural teeth, although it can also be used for this purpose. However great may be his skill and taste, no man can always carve and bake teeth, perfect as to form, size and color. He can always, however, select out of the vast variety furnished by the great manufacturers, teeth which can, in all these respects, be made to conform to the natural organs and, when these teeth are reinforced by prosthetic porcelain, the results are as practical as they are beautiful. They are also results which may be obtained by all skillful dentists, for this material is designed to make more efficient the aids which commercialism has given us and to make possible, for the ordinary practitioner, operations hitherto performed only by the chosen few. For continuous gum work there is only required the skeleton of the platinum irridium plate, with the teeth soldered in their places with pure gold, and then the intervening spaces and the failing contours can be filled out, with prosthetic porcelain, with ease and certainty. If the skeleton is anatomically correct and its parts equally strong, the clothing with form and color, by the addition of prosthetic porcelain, is like calling into life the inanimate clay.

You are all known as distinguished conservers of the natural organs and are immensely far removed from the reprehensible practice of indiscriminate extraction and, therefore, have only a subordinate interest in the supply of artificial dentures. Consequently, the use of this new porcelain in crown and bridge work will possess for you peculiar attractions; for, even under the old conditions, the restorations you have been accustomed to make, to spare your patients the calamity of wearing plates, have been amongst your greatest triumphs. You will therefore be interested to see how completely all evidence of artificiality can be avoided by the system I have the pleasure to present to you. These crowns and bridges are not only more beautiful, but also far stronger than those made under the old conditions. In those rare cases when labial or buccal bands are unavoidable, you will see how they may be concealed. Where, as is so frequently the case, bands are objectionable, you will observe how they may be dispensed with and yet sufficient strength be secured. In close bites, where otherwise the only chance for a masticating occlusion would be disfiguring and unstable gold or amalgam, you will see restorations perfect in form and color and indestructible in substance, although so thin in bulk. To cut out a film of an artificial bicuspid or molar crown, and set it in a platinum box, itself concealed by the bulging prosthetic porcelain which fills its recesses and holds securely the segment of the crown, either for a single tooth or in a bridge, is an operation as practical as it is beautiful. Here is no wasting through the force of mastication. Here is no shrinkage or roughening of surface or edges. Here is no favorite grazing ground for noxious micro-organisms. Here is no glimmer of gold to proclaim past unsoundness to the inquisitive eye. But here is a process so natural and so logical, so efficient, so full of blessing to the patient and so rich in advantage to the patient's doctor, that we may well pause for a time, until we have assimilated some of its possibilities, before we pass on to the unknown triumphs of the future.

THE PHYSICAL ORGANIZATION OF THE INDIVIDUAL AND HIS TEETH.*

BY E. J. PERRY, D. D. S., CHICAGO, ILL.

By the physical organization of the individual is meant his build, his physiognomy, his complexion, hair, eyes, etc.; in short, the finished man as he stands. It will be noted that Nature has observed a law of harmony and correspondence in his construction, and it is to a study of this law in relation to his teeth that I wish to invite your attention. When the natural teeth are all gone, and the alveoli have become smooth by the obsorption of the cancellated bone which envelops the roots of the teeth, and the features have changed because of this great loss, there comes to the unfortunate one a corresponding need. His features are no longer in harmony with other physical conditions. From the bounding beauty of youth to the beauty of extreme old age a gradual change is seen. But in that change under absolutely normal conditions the law of harmony and correspondence is still observed. You don't see the white frost of age at twenty, or when you do by reason of some disease you turn and look. The white hair is out of harmony with the round face of youth; the lines of responsibility and care have not yet come. Experience, wisdom, disappointment, love, sadness, or any of the emotions, good or bad, have not yet illuminated that face or written its story there, hence the sight is strange to you. So when the teeth are all gone, and the premature changes in the face have come, as noted above, our responsibility begins. (Assuming we are not responsible for their loss.) Not only does the individual need teeth for teeth purposes, but he needs teeth for a multitude of other reasons. He not only needs a mechanic, but he needs an artist. How to construct artificial teeth for teeth purposes is mechanical. How to construct artificial teeth which are in harmony with the physical organization of the individual is art, and how to combine the two qualities is the work of the finished dentist. Artificial teeth should not offend the eye. Their artificiality may not be concealed to every eye, but this artificiality should not be so conspicuous as to offend the eye of even the casual observer. Natural teeth are an important factor in facial beauty; a very plain face may be redeemed by a beautiful set of natural teeth, or even a very irregular set may give to the face a wholesome and pleasing look if sound and clean. In no way can the teeth be excluded as a factor in the make-up of facial beauty. The eyes, so important to the facial make-up, in a measure indicate the character of their possessor. They have been called the windows of the soul. So, also, the teeth. The temperament of the individual can be learned from them. There is a general symmetry about the individual which nature has observed, and with faultless accuracy. This is true as to the color schemes. The blonde has not the black eye, or a blue-white tooth. The shapes of the teeth harmonize with the shape or figure or physical organization of the person. This law of harmony and correspondence as dentists, when building artificial denture, we do not desire to violate. When we do, we offend the eye. We set in motion in our communities a violent discord, detracting from the beauty which God loves. A man may have no ear for music; he hears a band play; there is a discordant instrument in it; he knows something is wrong; he suffers, but has no remedy. The musical ear knows where the trouble is, and his suffering is correspondingly intense. So it is with the inartistic and inharmonious set of artificial teeth; the suffering of the community varies with the tastes of the people, but all suffer. Any inharmonious, unnatural or inartistic thing in a community is harmful to all who behold it. How about the human face divine? Everything in harmony with the physical organization of the person, with the exception of a monstrous set of false teeth? You have all seen them; most of us have made some. You have seen handsome woman disfigured horribly with artificial teeth. The profession is to blame. Now, I hold there is no more important work for us than to correct this. I will lay down a general proposition. I hold that a dentist worthy to be entrusted with building a set of artificial teeth should be able to give the physical organization of an individual with only a bicuspid, a cuspid, or a central to go by. That is to say, extract one of these teeth and take it to the dentist; he in turn should be able not only to give the person's physical organization, but to give the complexion, hair and eyes, overbite, and so forth. (Assuming, of course, that the tooth from which these deductions are made has not dried out and changed color; that its form is unchanged from disease or wear.)

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*Read before the Odontological Society of Chicago.

Now, then, if he can do this, or get near it, he can, of course, supply the teeth which harmonize, if given the physical organization minus the teeth. Is it too much to expect of us? Does not the comparative anatomist supply the whole osseous structure of extinct animals from the teeth or a part of the vertebral column? Of course, we have no way of disproving his theory, as the animals are extinct. But this much is true: The comparative anatomist knows the laws of nature which govern the development of animal life, and his deductions and distinctions are so close and scientific as to make us wonder at the accuracy of his work in the lines which are susceptible of verification.

Is it too much then, that we who spend our lives looking at the human teeth should be able to make such close and fine distinction as to tell from the build of the individual his facial contour, his physiognomy, his eyes, hair, complexion; in short, his complete physical organization, the style or kind of teeth indicated in his case, in the event all the above conditions being present with the single exception of his teeth? We should be able to get somewhere near it; whether we do or not is evidenced by the strange incongruities we see. The blue-white tooth in the blonde face, or the creamy white or yellow shades in the face of the brunette. Or the square, heavy, shaped tooth arranged with an overbite in the mouth of the tall, angular, motive type; or the long incisor with wide incisal edge and narrow neck, deep cusps, on bicuspids and molars and deep overbite, in the mouth of the heavy, square-jawed, lymphatic temperament type.

Dr. Royce has called our attention in an original observation to the variation in the shades of the teeth in the individual mouth, and now, like the puzzle picture, after having had it pointed out we never fail to see it. It can be seen that the cuspid tooth is decidedly darker than the central; that is to say, in the words of Dr. Royce, "the beginning point in shading a set of teeth is the cuspid, growing lighter to the central, which is several shades lighter than the cuspid, the lateral between the two." Now, then, running back from the cuspid, the same is true. The first bicuspid is about the shade of the lateral incisor; second bicuspid a shade lighter, and the molar about like the central. Thus, you see the shading is each way from the cuspid. These shadings are not conspicuous except by their absence. You may get the right physical form of tooth and hang it properly, and the shade correct; if they do not show this variation, they have a cold, odd look. You know something is wrong, and you say you can see infallibly their artificiality. They simply lack this exquisite, artistic touch, and they at once are given a life-likeness. Notice this in the mouths of your patients, confirm it by the use of the shade ring in every perfect set you work on. Now, when you are doing this, note the physical forms of the teeth, depth of cusps, overbite, and so forth, together with the physical form of the patient. Various staining schemes may be resorted to. Dark lines may be burnt in for aged persons, and the cutting edge chipped to age the teeth. The White Company have a hand carved tooth with stainings, but they are too regular, too uniform, too much effort to be acceptable, except in rare cases. These art touches must be done for the individual case, and by the dentist himself. I do not favor much display of gold fillings. A bicuspid may be left out, with good effect, and the space partly closed. I have done this frequently with satisfying effect. The first or second bicuspid can be of the shade of a dead and discolored tooth. This is often seen in natural sets, and is an effective way to disarm suspicion of the artificiality of the case. I have used this idea for many years. Different arrangements of irregularity when not extreme may be resorted to. This calls for a study of the effect in the lower oral teeth, and the observation as to the physical characteristics of the patient, dental arch, and so forth. A flat, broad arch, with square features, would contra-indicate the lapping incisors, and so forth. But, for the most part, the art work can be done in the six oral teeth, as these have been called the teeth of expression.

I make two general classes for shapes, and two general classes for shades, and consider them independent of each other; that is, the tooth form and tooth shade. The angular, usually tall or motive type, and the square, round, heavy-jawed or lymphatic type, for tooth forms. For tooth shades, the decided brunette and blonde. The grading from one to the other is the difficult work, but all not of a distinctive type are modifications of one or the other of these types. This is true as to shades as well, and the question in these cases of doubtful type is often perplexing, and no way or rule can be laid down except to try in your shade, and learn from the patient what you can. In the motive type, you note the features are angular, high cheek bones, long nose, long bony fingers, long narrow feet, not necessarily tall. High dental arch. long cusps, and a deep overbite; long incisors, wide cutting edges. narrow at the neck. If the nose is aquiline the forehead recedes. The incisors have a corresponding curve on their labial aspect. If the nose is straight, so is the central incisor labially. All through can be seen this law of harmony and correspondence. You can see it if you look for it. Again. take the lymphatic type. The face is the oval, square or round form. and all the physical characteristics correspond to these. The teeth are rather short, square, flat cusps, little or no overbite. and no curve in the line of occlusion. As to shades. take the two general types. the brunette and blonde. The brunette, the dark skin. black eyes, and hair will show the blue-white shades, while the blonde will show the creamy white. The crosses between these two will vary as the characteristics of the one type or the other are most dominant. Observation is the only hope of the dentist. He should note the shades of teeth in the mouths of his patients and learn from Nature herself her schemes of color and forms. There are no fixed rules to lay down, except in pronounced types. but the general law of harmony and correspondence runs through it all. I wish now to insist upon a source of knowledge which we can have in most cases, and that is the patient himself. It is a common idea among dentists that the patients don't know what they want. I do not believe this at all. I hold that they do, and but few will fail to appreciate an artistic piece of work, if it is, in fact, artistic. It is possible a patient may not know what he needs, but patients do know it in most cases when they get the right thing. If one has not the sympathy and coöperation of the patient, he enters upon his work with a fearful handicap. At all events, he must not have the opposition of his patient. The patient must be made to believe in you professionally and artistically. Many patients go to the dentist who in turn begin an argument as to their needs. This argument begets a defensive opposition, and the work is begun with the two parties to the transaction in non-accord, and the dentist has cut out a vitally important assistant. Suppose you sit for a picture or a portrait; do you not do your best to aid the artist? And what could the artist do without your most hearty and sympathetic coöperation? Both are interested in produçing an artistic picture. This is true, to a much greater extent, with the dental artist about to build a set of artificial teeth. He is to produce a facial harmony which all the world is to constantly look at. He is to restore the face, make all this plain to the patient, and who will not put themselves in instant harmony with you? None. The Jew and others, too, will sell you a coat; he will try on a coat for you and say, "Fits just like the paper on the wall." He works all kinds of schemes to sell his goods; you know this, and if you get a good garment it is because you are a good judge. But the purely commercial side of the transaction develops your opposition, and while the commercial side must of necessity be there in our transactions, its prominence must be hidden in an honest desire, above all else, to produce the artistic thing. The commercial will come all right. Get your patient in accord with you. The great prominence of this commercial side offends. Suppose you say this: "Do you realize what I am trying to do? Do you not desire to look well? You do not wish to offend the eyes of all your friends by a conspicuous show of artificial teeth? I expect you to assist me; give me suggestions. What were your natural teeth like? Let us see if we can't get somewhere near them. I am beginning a difficult task. I want you to help." They will every time. If they don't, then they see the dollar sign in your eye. They see your insincerity. I say to you: No man ever made a really artistic set of teeth who had not the sympathetic aid of his patient, and if he does not invite this and get it, he is a mechanic only, and if he gets an artist's fee, he is worse than the advertiser of cheap work, in that he charged for artistic work and gave only the mechanic's work, whereas the advertiser got a small fee for a cheap thing. The basis of a patient's aid, then, is confidence.

Another thing a dentist must not do. He must not brag. Let the patient brag. I believe this over-recommendation develops suspicion on the part of the patient. It sounds too much like "fits just like the paper on the wall." There is no place in our profession where the student of human nature can get such large returns as in this work. Again, the operator is the one best qualified. Why? Because he has the best opportunity to observe. He has the chance to study. The mechanic has not. He alone should select the shade, size, shape, hang of the teeth, arrange them, and do all the artistic part. The mechanic may make the dies, models, swage, solder, polish, and so forth, but the artist must be from the operating room, and this selfsame artist must first be a mechanic also, and then he will know how to have the strictly mechanical side done. He will know what are mechanical possibilities and what are not. I know plenty of fine operators who do no laboratory work, and when an artificial denture is to be made, take the impression, mush bite, sample shade, and size, send these to the laboratory man, who returns the completed work. He gets an artist's fee, and so the prosthetic wing of our work is done, and these strange incongruities are turned out on the world to advertise our lack of art.

A SYSTEM OF INLAY ANCHORAGE FOR PLATES AND BRIDGES.*

BY F. E. ROACH, D. D. S., CHICAGO, ILL.

It is not my purpose in this paper to give to you a history of the various methods that have been used in the anchorage of partial plates and bridges, but will ask your indulgence in a brief discussion of the methods most commonly used today, including a detailed description of the system which I have the honor of presenting to you this evening.

It is no longer necessary to offer argument in favor of bridgework when properly constructed in judiciously chosen cases. So that we may safely say at the outset that it is not a question of *bridges or no bridges,* but rather it is a question of *what kind.*

There are many ways of restoring lost teeth, the one most commonly employed in the restoration of partial dentures being the stationary bridge, constructed in various ways and in most cases with the view to obtaining what is termed the self-cleansing space. On the other hand, there are operators who employ stationary saddle-bridges, claiming for them better sanitation than the so-called self-cleansing bridge.

Without entering into an argument as to the merits or demerits of the stationary saddle, and believing that you will agree with me that the self-cleaning is more often a self-soiling space and that it is practically impossible to mechanically or otherwise cleanse these inaccessible surfaces on bridges that are cemented to place in the mouth, I deem it unnecessary to go further into this phase of the question.

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* Read before the Odontological Society of Chicago.

Deficient restoration and the too often destruction of good teeth to serve as abutments are worthy of our serious consideration. The desirability of normal restoration for comfort and esthetic reasons are at once apparent. In our endeavor to gratify the demands of our patients in some cases or to supply an unquestioned need in another, and too often for pecuniary reasons, we are led to very questionable destruction of good, sound teeth to serve as abutments for bridges.

Granting that the stationary bridge has some advantages and that it has a place among the many methods of supplying the lost dental organs, I am, nevertheless, strongly in favor of the removable bridge in the great majority of cases, provided adequate means of anchorage is afforded.

The problem of anchorage of partial dentures, whether plates or bridges, has engaged the attention of the profession continually and has resulted in many forms of attachments to the natural teeth with good, bad and indifferent results. The gold clasp in its numerous forms has no doubt served this purpose in a greater number of cases than any other method, and, while filling the requirements admirably in some cases, and without injury to the anchor tooth, it is my belief that this form of attachment has been the cause of premature loss of many good sound teeth and, at the same time, a constant source of annoyance to the patient. The ordinary clasp, as adjusted by the average operator, is a failure. Instead of an aid they are more often a hindrance—instead of holding the denture to place, they more frequently hold it out of place.

The demand for a better means of anchorage has led to numerous systems of attachment for bridges and partial plates, some of which are worthy of our attention as being, in some respects, decided improvements over the stationary work. However, nearly all of them have features which cause them to fall short of the requirements that make for ideal and satisfactory results. While slightly different in form they are in principle the same and what may be said of one will apply in a general way to the other. The attachments consist of male and female parts, one of which is to be secured to the tooth and the other to the denture, thereby affording a telescope bearing of the parts, the friction produced by the spring in male part preventing dislodgement during mastication.

The most pronounced objections noted in the above system are the exactness required in construction, leverage on anchor tooth and the male or spring part of attachment being placed in the mouth instead of on the denture. With the most painstaking care, warpage or some unknown cause will often change the position of the parts, which means trouble when we come to the final adjustment in the mouth. The unyielding rigidity of the attachment renders its use in cases having anchorage at but one end impracticable. The strain exerted upon the anchor tooth from the force applied to the attached teeth is enormous, sufficient usually to loosen and very materially weaken and interfere with its usefulness. As evidence of the strain in such cases, the attachments are often broken or torn bodily from the crowns to which they are soldered. The last objection—that of tightening the attachment—is not a serious one, but is of considerable importance to the patient, inasmuch as it requires a visit to the dentist when loosening, occasioned by wear, has occurred.

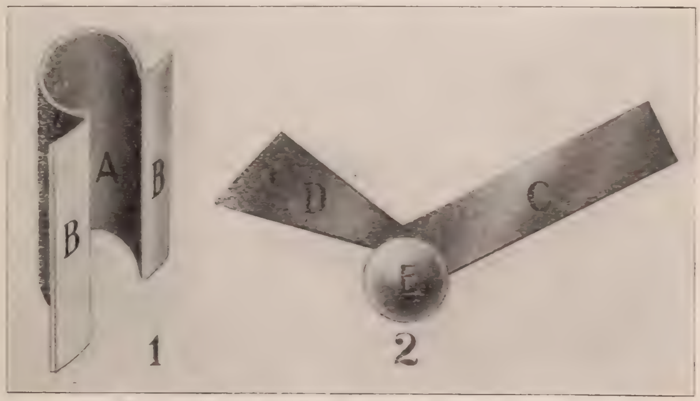
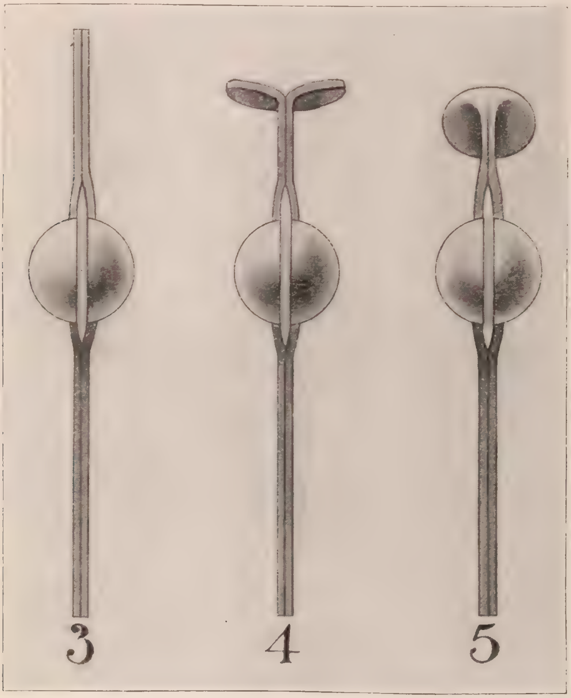


Fig. 1 is tube or female part. Fig. 2 is male part. D is upper stem intended to close end of tube, overcome lateral movement and prevent lifting at heel. E is split ball and C is stem for attachment to the denture.

In spite of any objectionable features possessed by the removable denture, it is, in my opinion, preferable for sanitary reasons if for no other. But in addition to the ideal, from a hygienic standpoint, may be mentioned greater possibilities of restoration of lost tissues, more artistic effects, facility with which repair can be made in case of breakage and simplifying any subsequent work that may become necessary upon the adjoining teeth. These advantages apply to all removable dentures and if in addition to these we can add others, and at the same time eliminate some of the most serious objections to the other forms of attachment, we have made an advance in the right direction. This, I believe, I have accomplished in the system as presented to you tonight.

Although its practical applicatioon is limited to a short time, the principles it embodies are, in my opinion, correct, and it is to these I wish to ask your consideration.



Figs. 3, 4 and 5 are end views of male part. Fig. 4 shows plates of upper stem bent over. Fig. 5 shows the stem soldered and finished.

As indicated in the title of my paper, the system of anchorage herein described may be properly called an inlay anchor. While not limited by any means to the inlay in the strict sense of the word, its use will occur in the majority of cases in the form of an inlay. The female part of the appliance may be inlaid into an inlay, it may be inlaid into a crown, an amalgam or gold filling, or it may be inlaid directly into the tooth, either one of which is an inlay anchor, hence the use of the term.

Briefly, the parts of the attachments may be described as follows: The female part comprises a round tube. No. 1, having an open side which extends throughout its length and is made preferably of 22-K. gold or iridio-platinum. The male part, No. 2, comprises a split ball with a projecting stem for attachment to the denture. and another stem projecting at right-angle which serves the purpose of closing the end of tube, and as a stop preventing lateral movement in bridges and lifting at heel of partial plates. This part of the appliance is made of clasp metal only. Those intended for use in rubber work have grooved stems and those for porcelain are threaded to fit a correspondingly threaded tube, into which it is to be cemented after completion of the work. The neck of stem is reduced just at the juncture and including a portion of the ball, thus preventing lateral impingement of edge of tube. The ball is made slightly larger than tube, so that when forced to place, the two halves of the ball are pressed together and the tension is maintained by the spring of the metal.

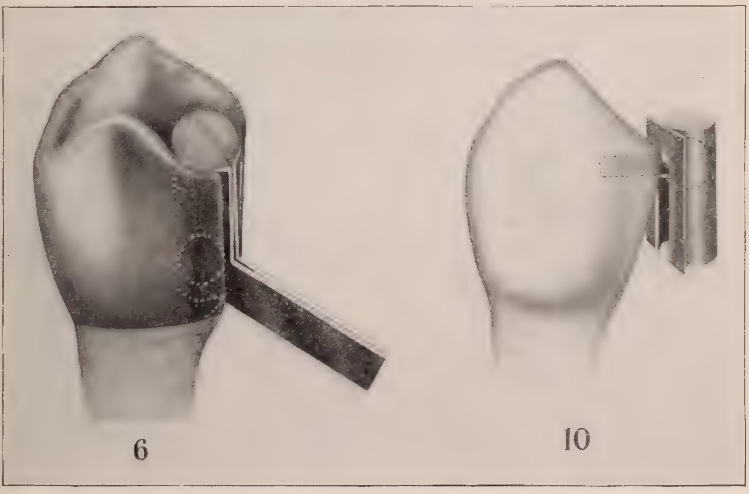


Fig. 6 shows attachments in place on a gold crown. Fig. 10 shows how attachment is made to a sound vital tooth.

The principal features noted in connection with this system may be summed up as follows: No jig is required to parallel the parts. The split ball will slide readily to place though the tubes be set at varying angles. This feature simplifies construction very materially and overcomes one of the most objectionable features found in other attachments.

By reason of the breakjoint, leverage on the anchor tooth is eliminated. This very desirable feature does not, to my knowledge, obtain in any other form of attachment ever used. This feature alone is very valuable when any number of teeth are to be swung back of the anchor tooth. A typical case of this class is one requiring all the teeth back of the cuspids. These cases are exceedingly difficult in lower dentures. In the upper we may obtain reasonably good results with the so-called suction plate, but in the lower there is little adhesion and the conical shape of the cuspids makes successful clasping in most cases almost if not wholly impossible. In such cases if decay has attacked the cuspids on the distal surface, the tube is made a part of the filling, thus serving the dual purpose of filling and anchor for plate. Should the teeth be free from decay, it is my practice to drill a small hole at right-angles with the long axis of

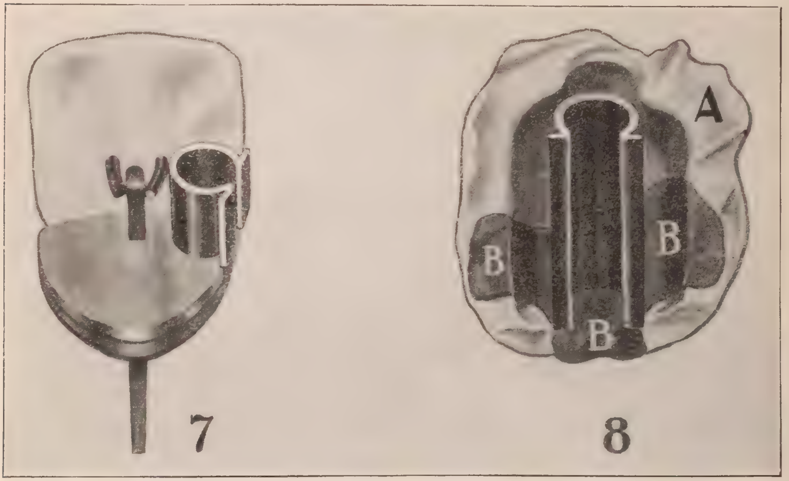


Fig. 7 shows position of tube in porcelain on Richmond crown. Fig. 8 shows position of tube in matrix for gold inlay—A is matrix, B is piece of thin, pure gold plate soldered to end of tube and burnished into contact with matrix as an aid in securing correct position of tube.

tooth at about the contact point and anchor one of the split balls for attachment, the tube being attached to the denture.

The appliance, No. 7, is but little in the way of adjustment of adjacent teeth in the denture, when the tube is placed outside of tooth or crown; but when inlaid it is absolutely out of the way, even though inserted directly in line with contact point.

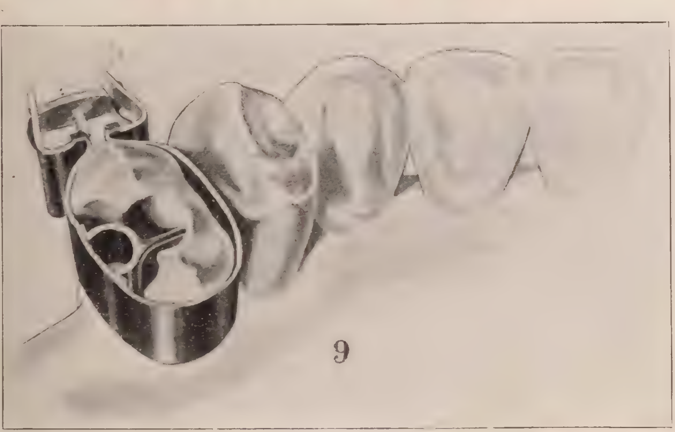


Fig. 9 shows tube with spur soldered to and extending into step of cavity and matrix adjusted for holding securely until filling is inserted.

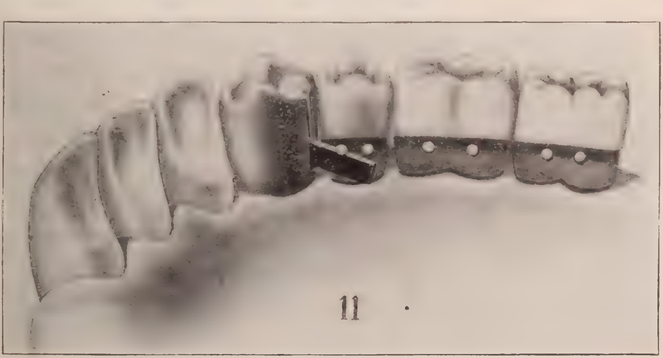


Fig. 11 shows relative position of attachment and supplied teeth. It also shows that the attachment is not in the way of adjacent teeth.

The fact that leverage is removed, many ways of securing the attachments to the teeth are made possible, and the probability of breakage of parts is reduced to a minimum.

Another advantage is the ease with which the attachment may be tightened; with the blade of a pen-knife the wearer can easily adjust the spring.

The avoidance of plates, in many cases extending from one side of the mouth to the other, is of especial value in partial cases where the posterior teeth are to be supplied. A gold clasp metal wire, about 15 gauge, fitted accurately, is much less in the way, is stronger than most plates, and is free from irritation to gums and does not injure the teeth. While the wire may be used in connection with some other methods, it has proven more satisfactory to me when used in connection with this system.

Rather than impose upon you a detailed description of the various means of securing the tubes to the natural teeth, I have made up a few models which will serve this purpose to a better advantage.

WHAT CHARGES SHOULD BE MADE FOR DENTAL SERVICES.*

BY J. B. DICUS, D. D. S., CHICAGO.

The subject of fees as applied to dentistry is one which, to my mind, has been sadly neglected in the curriculum of dental colleges. The subject has been one which the professor of any chair would refrain from touching. The professor of operative dentistry would tell you how a cavity should be prepared, the filling inserted and polished, but did you hear him say anything about what he received for such fillings or what he thought the average practitioner should receive? No. The professor of prosthodontia would describe to you minutely the method of making an artificial denture beginning with the selection of the impression tray for the impression and continuing through the various stages, until the denture is completed; but again, I ask the question, did he make any suggestion as to what your charges should be for making this or that piece of work? No. Of each of the professors of the various chairs the same questions might be asked and I think, without fear of contradiction, the same answers would be returned as before.

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*Read before the First District Dental Society of Illinois.

Then to the point—the only idea of prices for dental operations which the dental student knows upon leaving college, is cement fillings and treatments free, amalgam fillings fifty cents, gold fillings seventy-five cents per sheet for gold used, and, if work is a little slack, make it for 35 or 50 cents for thirty days. I say this is the only idea the young practitioner has of prices, unless he has been associated with a preceptor, or becomes associated with a student while in college who is familiar with prices which should be charged by dentists, and converses upon this subject. The average practitioner when he goes out to locate does not feel like visiting the practitioners of the town in which he is to practice. If he was to visit some of them he would meet with little information at their hands, though this is not always the case.

How much better would it be for every student who goes out from each institution of learning, if the various professors would have a heart to heart talk with the class, and be honest in telling what they receive for certain classes of work. These same students are likely to become competitors of the professors later on, and they should be so informed as to know what to reasonably expect and ask for work. If a young graduate cuts his fees very low in order to gain patronage and then raises them he is likely to offend his patients.

Every man must be able to fix the prices of his services to the patient, but by so doing he must have a standard to follow or gauge himself by. He must have a charge he would consider his minimum for certain kinds of work. For instance, if the practitioner believes and feels that the average amalgam filling he inserts should be worth one dollar or one dollar and fifty cents, and he inserts one which takes more than the ordinary time and energy to make it perfect, he should feel justified in charging an additional fee for it. I am talking now principally to the country dentist, but the same principle will apply to all, for in many cases the country dentist is better situated than one-half of the struggling city practitioners.

How often do we hear a dentist say, "Many times I have to put in amalgam fillings for fifty cents or seventy-five cents, although I usually get $1.00 or $1.50 for each one inserted, because some one across the street will do this, and I must do likewise in order to compete with him."

I believe that if your standard by which you measure the worth of your amalgam fillings is $1.00 you should strive to maintain that standard with your patients.

We must all educate our patients to have dental work done and have it done right. When we stop to consider that only one out of every twenty individuals have dental work done we are brought face to face with the fact that the other 80 per cent have not received the attention in an educational way from our hands that they should have received, otherwise they would have been visiting us at stated intervals for an examination of the teeth. People are being educated in other lines, why not more so in dentistry? The farmer is taught now that he is not doing justice to himself if he uses a walking plow, that, in its stead he must use the riding plow whether it be by horse or steam power. The old way has been discarded for the new. The lack of teaching on the part of the dentist accounts in a measure for the small amount of dental work done in proportion to the number of people.

The farmer is taught the necessity of many of the modern implements, although the cost is greater. Could not the same thing be taught the people in dentistry, if only the time were given over to impressing upon them the great necessity for having these dental operations performed, and why it is essential that all their teeth be in the best condition for the proper mastication and subsequent assimilation of the food? If necessary, charge the patient for this advice or teaching, either adding this fee to the price of the filling or making a separate charge.

I do not propose to say what shall and what shall not be charged for any kind or piece of work performed. I have seen amalgam fillings for which a charge of $18 had been made, and they were cheap at that, as they had done service for twenty years and were still good for several more; on the other hand, I have seen fillings which were dear at any price.

We can none of us say a certain piece of work is worth a given amount. The conditions will vary in each case, but we can set a general price which will be followed as nearly as possible. I believe if a dentist is treating and removing the pulp of a tooth he is as much entitled to pay for this treating and subsequent root canal filling as he is for the filling itself and should make the charge and get it. I know of no operation in dentistry so tedious and non-productive as the treatment of abscessed conditions. I firmly believe that we have ourselves to blame for not giving the patient to understand that this takes time and energy for which we must be rewarded. Many do receive a fair compensation for these services, but the great majority do not.

I believe there should be a free exchange of thought upon the subject of what should be charged for services. I am indeed mindful of the fact that the majority of the men who have no regard for prices and less regard for good work. do not attend any dental societies, consequently can not be easily reached, but a little missionary work may reach them and ultimately do good. As I have previously stated. I do not propose to attempt to fix a schedule of prices which should be followed, as time will not permit in this paper. but I do hope to hear a free interchange of thought as to what many are doing and receiving.

One thought I wish to leave with you—what you do, do conscientiously and fearlessly, and make such charge as you in your own mind feel to be just.

THE CONTACT POINT.*

BY J. E. AIGLEY, D. D. S., FARMINGTON, ILL.

This is a subject on which much, no doubt, has been said and written, but I have seen very little of it in our literature recently, excepting a casual mention in connection with other subjects. Yet I would make the claim, that in importance, it is second to none. I furthermore wish to make the unqualified statement that the loss of the proper contact point and the failure of the dentist to reproduce it in a proper manner is responsible for more discomfort to our patients, the destruction of more teeth, and the failure of more fillings than all other causes combined.

Not only does it do these things, but it destroys the interproximal space, thereby interfering with the proper occlusion, and frequently destroys the soft tissue that should occupy this space and which is then lost forever.

Let us examine what the natural condition of the denture presents in the oral cavity, where the alignment and articulation are perfect: In incisors we find an oblong convex surface coming in contact with a similar surface of the adjacent tooth, or we find a very small point of contact near the incisal edge. In cuspids, bicuspids and molars we find either a minute contact point, similar to one formed by two marbles touching each other, or it will be a narrow convex ridge running buccolingually.

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*Read before the First District Dental Society of Illinois.

It will be readily seen that all such contact points afford very little opportunity for lodgement of food particles which are not readily washed away by the fluids of the mouth, aided by the action of the cheeks, lips and tongue.

If this condition can be maintained, or if lost can be restored, there will be very little danger from caries on the proximal surfaces, provided that the necessary care is given the teeth.

But conditions are presented to us which are far from the ideal; we find the progress of decay all the way from where the decay is slight and with no appreciable amount of tooth structure lost, to that most deplorable condition where the whole proximal surface of one tooth is broken down, the pulp exposed or nearly so, and the adjacent tooth also attacked by caries and crowded to a greater or less extent into the cavity of the other, and the interproximal space entirely obliterated.

This is a condition we all dread to start on, and if there ever is a time when I regret that I am a dentist, it is when such a case presents itself and I am informed by the patient that she wants the work all done today, that she came ten miles and does not know when she can come again. Gentlemen, this is a problem that is hard to solve; we are often tempted to do the best we can under the existing conditions and wink an eye at the evil we know is sure to follow. In such an extreme case, after allaying the pain and making the patient as comfortable as possible our attention should be directed toward devising some means of obtaining the necessary space and restoring the proper position of the teeth.

Enough space must be obtained in all cases so as to enable us, when putting in the permanent filling, to so contour it as not to leave a flat surface for a contact point.

I would prefer, when the patient is unable or unwilling to take the time to have them properly separated, to extract the worse one of such teeth, rather than to do the work in such a manner that I would not approve of if it were done by some one else and that I knew could result only in failure. Immediate separation, you all know, is not possible in such cases. Just a word here about separating materials. I have used rubber strips, rubber dam, cotton tape, gutta-percha and orange-wood wedges. I have discarded all except the two last mentioned. I find I can do the most effective work with a minimum amount of pain with an orange-wood wedge driven between the teeth and a larger one substituted every few days. There is very little soreness after the first few days, and it does the work quicker than gutta-percha. If the filling is to be gold, see to it that the condensation is most thorough at the contact point; make it as hard as possible so it will not wear flat afterward. There is great danger in using a matrix, in putting in proximal amalgam fillings, that the contact point will be a flat surface; because the matrix usually employed has a flat surface. This should be avoided by contouring the matrix so it will present a concave surface to the cavity to be filled. But the great cause of having a flat surface at the contact point is that we have not obtained enough space, and under such conditions contouring the matrix is of little avail. If the space is ample the contour can be made overfull and the filling cut down afterward to the contour desired. Space is the all important thing to consider if you wish to restore the normal conditions of the teeth as they were before caries had produced the condition we find when the patient comes to us.

Then be sure that you have enough room to do the work right. If you do not have it get it at all hazards. The time consumed to obtain it is not lost, because the comfort to your patient afterward, the security of the filling and the satisfaction to the operator will amply repay for all time consumed.

PROCEEDINGS OF SOCIETIES.

AMERICAN DENTAL SOCIETY OF EUROPE, HAMBURG, GERMANY, APRIL, 1904.

DISCUSSION ON PAPER "PROSTHETIC PORCELAIN," BY DR. N. S. JENKINS.

Dr. Jenkins,

Continuing, said: In the specimens I have brought, one may be regarded as a failure. It is an example of the extreme care and nicety which is necessary for the production of this new material. Here is a gum-colored porcelain which was used in the ordinary way to unite these teeth to the plate. I did not know that at the very last procedure in the fabrication of this particular piece a trivial error had been committed by one of my people, and it was only therefore at the fourth melting that I found these small checks which you will see run all through this piece, which has the vulcanite rim. That was entirely an accident, and wholly unnecessary. In another piece I have purposely made the prosthetic porcelain so thin over the pins that you may see how completely it enters into every crevice, and how perfectly it covers the platinum pins. If you will examine it with a magnifying glass you will see it is melted even in that thin degree to absolute solidity. In these cases of crown and bridge work I have given the skeletons here and there, so that they may be compared with the completed product. I particularly wish to call your attention to what I regard as an absolutely perfect porcelain bridge. You will see the skeleton, and you will observe that the completed bridge is so made that it touches only the margin of the gum—that it is so formed that it can be kept absolutely clean and no particles of food can make their way underneath this trivial point where the gum is just touched. Moreover you will perceive that the porcelain runs down entirely to the gum, which gives to the lips, the tongue and the cheek a far more agreeable sensation than is possible with an all metal bridge.

Dr. W. M. Griswold:

Said he was somewhat surprised to receive a letter from Dr. Jenkins asking him to open the discussion on his paper, because Dr.

Jenkins knew that he had probably had as few years' experience in practice as any member of their Society, and also that he had always used a large quantity of the regular porcelain which fused above the melting point of gold. Every man had some reason for the faith that was in him, and if he must give his for using high fusing porcelain, he begged to say that it was due to the confidence he had in the manufacturers of that article. He once had the privilege of spending the better part of a day in visiting the S. S. White Tooth Factory. As he observed with great interest the different departments, he could not help noticing the attention each individual tooth received, and in fact the care exacted in every department. With regard to the use of pure gold as a solder for platinum, the surfaces of platinum could, by the use of pure gold, be sweated together so that they did not separate. Most advocates of high fusing porcelain would find it difficult to believe that any porcelain melting below the fusing point of gold ought to be called anything but glass. Possibly if Dr. Jenkins would explain to the Society what he meant by saying "Its evolution has been by deductive process" and that "This porcelain has been reduced to manageable proportions," members of the high fusing persuasion would be able to see how it was proper for Dr. Jenkins to lay claim to the term porcelain. In February Dr. Jenkins had sent him some prosthetic porcelain, and the following were the results of a few simple tests: The first case was a lower right first molar, where the second bicuspid was missing, and which could be seen at ordinary conversational distance. He, Dr. Griswold, drove it on with a hammer, and gave it two or three more than ordinary raps, only stopping out of consideration for the patient. His intention was to fracture it if he could. The second was a lower bridge where the high fusing porcelain had been used. By placing a very thin layer of Dr. Jenkins' prosthetic porcelain over the bands they were more completely concealed than with any porcelain he had ever seen. The third was a lower left bicuspid, made without a band, and the bite so short that he would not care to use high fusing porcelain. He had seen the crown two or three times since. It was in good condition, and he thought it would be interesting to observe how time would affect it in the mouth. Dr. Jenkins' prosthetic porcelain did not match American teeth in texture. In his experience a foundation of high fusing porcelain seemed necessary to give it a permanent form that would stand the required firing.

Dr. George Cunningham

Was sure everyone admired the cases that had been circulated, especially from their artistic qualities, although he did not think that the gum color was quite all it should be. With regard to the possibility of the use of porcelain in bridge work, it was obvious that such a material must be much cleaner and more pleasant in the mouth, and more ideal altogether, than metal work. At the same time there were one or two points of difficulty which he desired to suggest. Some of the members might remember being at an International Medical Congress in Berlin, where he gave a demonstration on a material which he called vitralite, a low-fusing porcelain. A number of specimens were made and went to America, but as they could not get through the Customs without paying duty they were finally sold at one of the sales of the Customs Department. Those specimens were existing somewhere, and he should be obliged if anyone who came across them would communicate with him. In these specimens he went so far in the color direction that there was one case in which the pathological condition of the gum was absolutely imitated, and a point was reached at which it was possible to control the color to such an extent that smokers' gums and the necks of smokers' teeth could be imitated. The high-fusing man maintained that it was not porcelain, but glass. Porcelain at its best must be to a certain extent glass. Dr. Jenkins was in the happy position of having better furnaces. At the time when vitralite was introduced the furnaces were in a very poor state, but now it was quite easy and practicable to have electric furnaces. He desired to appeal to Dr. Jenkins on the word prosthetic. That was an unfortunate word. Prosthesis was a good term, and one that was perfectly understood by the profession, but it was not understood even by the most intelligent outside persons. It was a manufactured word that carried no conviction. The word vitralite, although a manufactured word, was understandable.

Dr. W. A. Spring

Thought the Society ought to be proud that so honored a member as Dr. Jenkins had presented to the profession another very valuable paper. After looking at the interesting specimens, he could not believe that the profession was forced any more to use a high fusing porcelain. He believed with Dr. Cunningham that the color of the high fusing porcelain was somewhat better than the low, and he desired to ask Dr. Jenkins whether he used two colors, because in the specimens one color was decidedly an improvement over the other. He thought Dr. Jenkins was wrong in the statement that a high fusing porcelain was not safe to use if a pure gold solder was used to bind the parts together. That depended on the color of the work. If the two parts of platinum were accurately joined, pure gold might be used, and that was proved by the fact that for years pure gold had been used as a solder with great success.

Dr. E. Lawley York

Asked whether the whole mass was built up with one color, or whether the baking was done with a neutral color, and the material colored afterward.

Dr. Jenkins

Said the entire mass was colored throughout.

Dr. York

Asked Dr. Cunningham why he objected to the word "prosthetic" dentistry and suggested calling it vitralite. As far as he could understand it was only calling porcelain vitralite for prosthetic work.

Dr. W. Mitchell

Was always interested when he heard porcelain spoken of, and wished to pay another tribute to Dr. Jenkins for bringing forward something which was going to put dental work upon a more artistic basis than it had been heretofore. Anything which interested a man in porcelain work, whether low or high fusing, was an advantage to the profession. The only thing he desired to criticise about the specimens he had seen was the color of the enamel, but he thought that could easily be gotten over. In the preparation of enamel for that class of work it seemed that a high degree of heat was necessary in the majority of cases to bring out the beautiful flesh tints as they were seen in the higher fusing enamels, but he had no doubt that Dr. Jenkins, with his persistency and the facilities he possessed, and the knowledge he had in connection with the work, would be able to bring the whole thing to perfection. He wanted to suggest that instead of building up the entire body with the enamel it might be possible to make the basal portion of it out of a yellowish or brownish-yellow body, and then the translucency or the refractive capacity of the base would be transmitted through the enamel, and thus any shade desirable could be produced. It was a shade too deep in color, and that might be modified by utilizing a base, and experiments on

Dr. Jenkins' part might demonstrate what was the best base to produce such a result. He had had considerable experience in continuous gum work, and he found that the flesh tints were developed to quite an extent by the condition of the base that was used. With regard to solder, there was no question but that Dr. Spring was right with regard to pure gold having been entirely used until comparatively recently. But where it had been used and the heat had been carried slightly in excess of the required melting point of the body or of the enamel, there had been more or less bubbles in and about the points where the greatest amount of gold had been used. That had resulted from two causes. One was that the fittings underneath the pins or the pins themselves had not been in close apposition to the plate, and the gold had flowed more or less imperfectly. It was not filled up perfectly with the body or with the solder, and if there had been spaces left the expansion of the air would cause a bubbling of the body or of the enamel at that point. In the second case if the heat was already a little too high it would be found that vaporization of the gold would take place, and produce like results. He had obtained the best results from gold and platinum using a cylinder of oxygen to furnish oxygen in connection with coal gas for soldering. He was not in favor of using any borax in soldering, unless with a low fusing body, because it had a tendency to disintegrate a high fusing body, and cause no end of trouble when baking. About 10 per cent of platinum with 90 per cent of pure gold, would make a most efficient solder, and if oxygen with coal gas was used it was possible to burn all the gold out before the piece was put into the furnace, so that there was no tendency to vaporize in the use of high fusing bodies and enamels.

DR. KIRK DAVENPORT

Was much interested in the paper, more particularly from the advantages which the system gave in the use of English teeth. He could see a field for work in connection with the beautiful work of the English mechanic, which was put in patients' mouths by English dentists. At the present time tube cases, however well constructed, were dirty. There were cavities and spaces left in which food collected. Lately in making some tube cases he had been experimenting with other bodies and enamels, and had found that instead of grinding the tube teeth to their position, the bodies helped materially. He found the difficulty of such friable, porous material in all the work he had done. It might be possible that by the means he had suggested to use the solid teeth made by Ash & Sons.

Dr. Cunningham

Said there was a further advantage, namely, that such a material as Dr. Jenkins had described would do away with the trouble of working with tube teeth, and the tremendous time taken in fitting. He had tried to get a special tooth adapted for the purpose, but it was very difficult indeed to do so. He did not think the profession was going to adopt the system as quickly as Dr. Jenkins apparently believed, as there was much yet to be learned.

Dr. McBride

Testified that Dr. Jenkins had spared no time or expense in the production of a porcelain which would fill a long-felt need in the dental profession. He, himself, had used the new porcelain in the construction of crowns and bridges, and comparing it with other high-fusing and low-fusing porcelains he wished unhesitatingly to say that Dr. Jenkins' new material was the most beautiful material in its manipulation, in its strength, and in its density, that he had ever used, and he could most heartily commend it to all porcelain workers. In his opinion it had no equal.

The President

Said that the use of tube teeth, as mentioned by Dr. Davenport, had been taken up and utilized in a very practical way by Dr. Griswold, who had produced a most satisfactory denture for a patient. The very first case of tube teeth with porcelain that he had seen was made by Dr. Griswold, and it would be an advantage if Dr. Griswold would tell the members his mode of construction.

Dr. Griswold

Said that after the gold plate was swaged up an impression was taken, and the teeth attached as in the continuous gum method, and the blocks carved up. The tubes were drawn out by means of an ordinary draw plate.

The President

Asked whether the tubes were joined to the saddle to begin with.

Dr. Griswold

Said they were.

The President

Asked whether Dr. Griswold used tube teeth in the ordinary way, built up and fused together with porcelain.

Dr. Griswold

Said he did not.

The President

Said it was practically the construction of tube teeth out of ordinary flat teeth, by carving the molar on the block, which was produced.

Dr. Griswold

Said that was so.

The President:

Some of the members had spoken about the difficulty of matching the shades of the teeth in porcelain work, but the question of shade had been very largely overcome by the fact that it was now possible to paint either the porcelain or the teeth to any desired color, and it was only the question of another firing to arrive at any desired result in that way. As far as the gum color was concerned, in connection with commercial porcelain painting it was possible to produce all the colors necessary, and those colors were in the most beautiful and artistic tints. As it was possible to paint ordinary porcelain, he saw no reason why it should not be possible to evolve a paint that would enable the operator to attain all the various shades of gum color that were needed. If that method could be adopted there need be no dependency on the firing. It was very difficult indeed to get the different shades in the gum that were obtained in the teeth, but working on the lines he had suggested something of that kind might be obtained, and Dr. Jenkins would be one of the very best men to carry that out, if he had not already done so.

Dr. Hirschfeld

Thought the time had not yet come when the dental profession could do without all gold or all platinum crowns. As long as those crowns were used the question would arise as to whether there was any means of covering the metal in such a way as to make it look natural, and perhaps the new material might fill up that long-felt want, and one might be able to coat an ordinary gold or platinum crown in such a way as to make it look like a porcelain crown.

Dr. C. P. Haselden

Said that in reply to the last question he might mention that Dr. Jenkins had kindly sent him some of his enamel, and he had used it on a second molar on the right side of the lower jaw. He made an ordinary cap, and covered it entirely with porcelain, and carved it up to the necessary bite, and it looked perfectly natural, and was a very successful case.

Dr. Hirschfeld

Asked whether the crown was a good one.

Dr. Haselden

Said it was.

Dr. E. Lawley York

Said he had seen the skeletons that were being passed round, and it seemed to him that it was possible to unite the two caps with one piece of platinum wire. In Chicago, where a great deal of porcelain work was done, the failure of many of the bridges was caused by the breaking of the porcelain body where there was only one connecting rod. Unless the skeleton had a rod below and one across, with a brace truss between the two, however strong the body was, the frame itself was not strong enough, and there was a fracture. The body did not give much strength between the two abutments unless the frame itself was of sufficient strength.

Dr. N. S. Jenkins

Said he asked Dr. Griswold to open the discussion upon his paper, because he knew he was an expert in the use of high-fusing porcelain, and he had some hopes that he might convert the doctor to the conviction that the new way was the best. Possibly Dr. Griswold imagined, like some others who had gone further than he, and actually tried to produce a low-fusing body, that all that was necessary was to break up commercial glass in a mortar, and add some coloring matter to it. That was a great mistake. There was no such simple way of producing a useful body. All dental porcelains had a close chemical resemblance; the difference between them was chiefly in the method of manufacture. Porcelain could be made to resemble glass, and glass could be made to resemble porcelain. There appeared to be a general confusion of mind as to what constituted true glass and true porcelain, and he regretted he had not his notes with him, because he possessed analyses of all the important porclains and glasses. For the simplest forms of glass, silica as the acid element, soda or potash as the alkaline base, with lime or some other alkaline earth, would seem to be all that was indispensable. Porcelain, however, must have a frame-work of kaolin, a frame-work which never quite perfectly fused. Si. O_2 was common to both; $Al._2\ O_3$ was essential to porcelain. Artificial teeth and all true dental porcelains were founded upon the manipulation and fusing of kaolin, feldspar, and quartz. For the latter it was a mere matter of convenience whether sand or rock crystal was employed. Such a porcelain in its simplest conditions naturally fused at a high temperature. It had been his object to obtain porcelain which had to be reduced to manageable conditions through lowering the fusing point, and making the work of the dentist consequently simple. The product which he presented might claim to be nearer the true porcelain than artificial teeth or any high-fusing body, because it contained a higher per cent of kaolin. $Al_2\ O_3$ was found everywhere, but it was nowhere the same. In remote antiquity it was discovered and used in China. Its discovery and its development in Europe had been a romantic and interesting story, familiar to all. It was widely distributed throughout the earth, but in the mysterious laboratory of Nature, that Nature which was so bountiful that she never colored the violet that grew on New Hampshire hills or on the slopes of the Alps, or in any two contiguous gardens, with the same hue, had innumerable resemblances, but few identities. Kaolin was a material which had one quality in China, another in Greenland, another in Saxony, and another in America. The same thing was true of feldspar. It must not be imagined that he had given so much time to the consideration of the question without going in a measure to the bottom of the subjects, but although he did know some things after so many years of labor, he had but touched the fringe of what there was to know. There was, for instance, a great difference between American and European clays. The kaolin which was found in different places in Europe possessed a plasticity and strength that was not to be found in the kaolin of America. The differences might be minute, but in cases of manufacture these were of very great importance. But the great and important matter in the development of such a body was the treatment of the various elements. He had spoken of the simple matter of producing a high fusing porcelain, and it was usual for him with one or two meltings to produce a high-fusing porcelain of a workable character, but in order to bring the body which he had presented into a usable condition. there were at least four meltings necessary at a temperature so high that the ordinary thermo-electro pyrometer could not deal with it. There were other points in the ingredients which required the utmost care and accuracy. When the great question of color was touched, one was standing on the shore of an unknown sea. Who was able to say what were the influences which were exerted by the different metallic oxides in various combinations? He had gone back to the basis, and had endeavored to be certain as to what he was using in the way of color. Various suggestions had been made with regard to the colors, and he was grateful for them, but he assured the members that while there were certain results which had been obtained. there were a great many more which he hoped to obtain, and at present any desired color could be produced with sufficient trouble. To give an idea of how complicated some of the questions were, he might state that in the single oxide of silver which produced a very beautiful but evanescent yellow, thousands of experiments had been made in his laboratory, and it was only after a long period of time that the interesting fact was discovered that oxide of silver did not color by chemical action, but only by mechanical touch. No machine could properly mix that oxide so that it produced the desired color: it had to be laboriously done by the cunning action of the human hand. With regard to the color of the gum, it was merely tentative. Any color desired could be produced. It was only a question of what colors were necessary for general purposes, and that could be determined only by experience. He was convinced that for practical purposes, for the ordinary working dentist for whom he had been working, and for whose interests he had for the past few years exclusively lived—that for the ordinary practitioner a gum color of various shades which were solid throughout was a much more practicable and desirable thing than complications involved in making the body of the gum of one color and painting upon it another. He could only say in reply to Dr. Cunningham's criticism upon the word, that it seemed to him prosthetic porcelain was a descriptive term which was perfectly well understood by the profession, and it was not necessary to explain it even to the most intelligent patients. In regard to Dr. Lawley York's criticism, the two skeletons which had been passed around were but two stages of one developmnt. The rod which connected the two crowns was made of platinum with 20 per cent of iridium, which gave it great stiffness. But he did not depend upon that, and in the next stage of development between the two crowns there were soldered two platinum cups, which tended enormously to strengthen the bridge. He quite agreed with Dr. York that in the production of such a bridge it was necessary to depend entirely upon the strength of the skeleton, although the porcelain offered great support as well. If the skeleton was insufficiently strong an unnecessary risk was run. He could only say in conclusion that if any intelligent man took up a question of that kind and devoted to it years of labor and thought, disdaining expense, he must in time, guided by the experience of the past, at last accomplish something worth his while. In his own case he had been assisted by rare intelligence and devotion, and by the advice and assistance of the ablest chemists and experts in ceramics in the world.

Dr. Lawley York hoped Dr. Jenkins would not misunderstand the spirit in which he criticised the structure of the frame work. He did it knowing that a number of men, after seeing the beautiful specimens, would be tempted to start porcelain bridge work, and by the failure possibly of the superstructure might run the risk of ultimate failures in the mouth and would blame the porcelain which was not responsible. However strong and stiff the iridio-platinum might be, the weak point was just where the iridio-platinum joined the two caps, and as that was only held by pure gold it was not stronger than pure gold.

Dr. Jenkins

Said that was quite correct, and he only hoped that it would be observed that in the completed bridge the wire was not the only support, but that there were wire plates which supported both ends of the bridge above the wire.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held January 12, 1904, with the President, Dr. Elliott R. Carpenter, in the chair.

Dr. E. J. Perry read a paper entitled, "The Physical Organization of Man and His Teeth."

DISCUSSION.

Dr. Truman W. Brophy:

I really don't know why you called upon me to open the discussion on this paper. I have listened very carefully and attentively to it, and I desire to state that when Dr. Perry reads a paper he brings out so much to discuss, that there are very few of us who are able to touch upon the various points presented.

I have for a great many years felt the importance of a careful study of this department of dentistry— I was about to say this specialty of medicine that the essayist has presented to us, a special line of medical practice that he has discoursed upon. The more I think of it, and of the history of the evolution of prosthetic dentistry, the more I wonder it has not been taken up by a greater number of the members of our profession and given more consideration in the years gone by. There are only a few men engaged in the practice of dentistry who are well equipped in this department, and I think I am safe in saying that the average student prefers the operative department, and he devotes more time to preparation in that department than he does or desires to do in the prosthetic department. It is with a great deal of difficulty that college teachers are able to impress upon the average student the importance of thoroughly equipping himself in prosthetic dentistry. I suppose the feeling of the student and his ideas of dental practice have grown out of what he has observed in others. He may have noticed a certain practitioner who devotes his time exclusively to the operative department, and he has a feeling that when he graduates he, too, may operate and engage some one else to do what he requires in the laboratory. The essayist has put that so tersely and emphatically, that a man to be a success in constructing artificial dentures must not only be able to arrange teeth and secure proper colors, shades, sizes and length and facial expression as well as all that which goes to make up a very good imitation of the natural teeth, but he must be able to do what is necessary to complete the denture. I think the difficulty lies in the making of artificial teeth from the fact that the dentist does not know or study carefully enough art, nor is he able to do his work as thoroughly as he is able to his work in the operating room. That is one of the difficulties that all dental colleges in this country have to contend with today, to get students as enthusiastic in the prosthetic department of the college course as they are in the operative department.

I think that such men as Dr. Royce of Chicago, and Dr. William Mitchell of London, England, are entitled to very great credit not only for calling our attention to the fact that teeth in a single mouth vary in color, but they have adopted measures to overcome this defect that we have in artificial teeth as they are manufactured and put into the dental supply houses for sale. Whether the dental manufacturers are taking steps now to carry out the teaching of Dr. Royce and Dr. William Mitchell in the matching of colors of artificial dentures, I do not know. Whether the dental manufacturers have begun to make cuspid teeth a little darker than the incisors and bicuspids I do not know. If they have not, the only way to get them to do it is to make them understand it is necessary, and that the dental profession demands an improvement in artificial teeth. If they have done that, they have placed their teeth in the hands of men who have not considered the question of variations in color at all. The men who make artificial dentures in great numbers perhaps do not consider the question of variations in color, and if the manufacturer should make various shaded teeth in a single set and put them in the supply houses for sale, those who do not appreciate their merits will have to use them anyhow, not by reason of their own efforts or desires, but they will be forced to do so, and their results will be better.

The essayist spoke particularly about facial expression. One of the saddest parts of dentistry is to see a man far advanced in life wearing a set of teeth that is an exact counterpart of a set adapted to and worn by a young person. It is a sad comment on dentistry that such a condition of things is possible, and I do not know how that can be overcome unless it is to change the breed, so to speak, and get a different class of men in dentistry. I think we are improving. I know this subject is being taught carefully in our dental colleges. Many years ago a dentist read a paper in New York the title of which was "Indian Rubber Gum Block Teeth." He discoursed upon the subject of blocks, gum teeth, and the sets dentists were buying at that time. I think I can say without any reflection on the people of any particular community, in certain sections of the rural districts, where artificial dentures are made, we will see block teeth, gum teeth for old and young alike. The dentists buy them in large quantities, set them up, and make them without any apparent regard as to adaptation of color, size, length, or anything that will go to make up a denture that will in the slightest degree harmonize with age, features, etc. You will find that as many as forty sets of teeth will be purchased from the supply houses, and everybody who comes along gets a set, with only slight variations in form, shape, color, etc. We want to overcome that.. I don't know how to overcome it except to impress upon the young men in our dental colleges the importance of doing what is right in this direction.

I think Dr. Perry's paper will do a great deal of good if it can be published and read generally; but the difficulty in getting this subject before the profession is great, yet I have found in our dental meeting in the last six or eight years a great deal more time has been spent and more thought bestowed upon this subject than formerly. I presume every one here will remember that within the past fifteen of twenty years a movement was on foot in the University of Michigan to exclude instruction in artificial dentures on the ground that it was not a department of dentistry; that it should be relegated to departments outside, the same as the construction of artificial limbs, artificial eyes, etc. It failed by one vote in a meeting of the Board of Regents of the University of Michigan. If that had been done, it would have left that university dental department in an unfortunate situation.

Through the work of technical teachers this department is being brought more prominently before the dental profession, and students are becoming more deeply interested in it, because they see in it the beauty of artistic work, and really it is the kind of work every dentist who seeks assistants demands that they shall do. If any young man goes to the office of a practitioner seeking a position as an assistant, one of the first questions he will ask him is: Are you qualified to perform the duties of an assistant in constructing artificial dentures, and if the young man is unable to do that, he can not get the position. The same is true on the other side of the water. If a young man seeks a position the gentleman at the head of the office desires to know whether he is qualified to do that which is necessary in the laboratory and to do the work well.

Dr. C. N. Johnson:

A paper like Dr. Perry's is always an inspiration to me because it is the development of the artistic in dentistry. I have only one or two things to say in connection with the paper.

It is true, as he has said, that there are types of teeth which go with types of temperament. But there is one thought that impressed me during the reading of the paper, and I think the essayist will agree with me, namely, that nature is not always exact in following types when it comes to the teeth. We do not always find in the natural teeth the form or color that perfectly agrees with that particular temperament. In some way, certain individuals inherit teeth which do not fit the mouth. Their teeth are very conspicuous. We see this among our patients; we see it every place. I believe it is the function of the prosthetic dentist, if he lives up to the highest possibilities in this work, to remedy these defects when he constructs a set of artificial teeth. It is possible for a dentist, who is an artist, in many instances, to improve and harmonize better than nature has done in that individual case, so far as appearance is concerned. That appeals to me very much because I have seen many instances where an artificial set of teeth, properly made and inserted, was very much less conspicuous and called the attention of the on-looker much less to that particular feature of the face than did the natural teeth when in position in that mouth.

There is a wonderful field here which we have very largely overlooked or neglected. We can not follow nature in all her forms and get the most artistic results. Nature is not always artistic; I do not mean that we should put in a pretty set of teeth in a case in which the natural teeth were not pretty, but we should follow the type of that individual by putting in an artificial set of teeth which will conform as nearly as possible to what the natural teeth should have been

It seems a fortunate thing that thanks to modern dentistry we seldom see today a complete loss of a natural set of teeth at one time.

Patients do not ordinarily have a whole set of artificial teeth put in as they did twenty-five years ago. It may obtain in some districts that people have all their teeth taken out in one fell swoop, but we do not encounter this today as we did formerly. Some of the teeth may be lost; there may be a partial plate put in or a bridge of some kind, so that the prosthetic dentist has the opportunity to follow the type of that particular mouth, conforming as nearly as possible to the natural teeth in making the artificial denture and not be so abrupt in the change as was formerly the case.

J. H. Woolley:

I have enjoyed Dr. Perry's paper. He has shown us the difficulties that arise in prosthetic art.

To produce the best results I believe we should study modeling in clay. You can thereby learn the composition of the human face. This is only obtained by portraiture in clay. Prosthetic art deals with the correlation of the mouth to the rest of the organs of the face, and a truer knowledge of that correlation is aided and gained by first studying portraiture in clay.

Dr. J. G. Reid:

I had the pleasure of seeing this paper before it was read tonight, and I believe I am better able to discuss this matter privately with the essayist to advantage than publicly. You have all agreed in the main with the paper, and so do I. But I think we fully appreciate the fact that we are all far from being artists. Even though we may have been in the practice of dentistry a great many years, if it is not in us, it is a very hard matter to bring it to the foreground. It has been wisely said that "poets are not made," and I think the essayist has pictured to us a very high ideal of what a dentist should be. It is the extreme, and if it were possible for us to reach the height of the ideal which he has expressed, there would be a very wonderful improvement in prosthetic dentistry, but it is not possible for us to attain that height of perfection which he has presented to us. We are all at fault, and it may be due largely to the fact that we are not as close observers of the physiognomy as we should be of the man as he is. We do not study him enough. We pass him by. I wish it were possible for me to be able to do what he has outlined in this paper, but I will candidly admit that it is not in my power to do it, because I was not born to do that sort of thing. While to a reasonable degree the artistic sense can be cultivated, yet to reach the pinnacle of eminence he has set forth is only possible for very few of us.

I can not agree with some parts of the paper. I would differ from the essayist that we should depend upon our patients to say to us what we shall do. I think in the great majority of cases we would perform an operation that we would dislike to look upon, or any one else who might be called upon to see a denture in the mouth would criticise it simply from the fact that we have permitted ourselves to be guided by the patient. I agree with him that we would like to have the confidence of the patient, but to permit the patient to direct our work, unfamiliar with the conditions that we have to contend with, is unreasonable, and I would not tolerate it.

Dr. J. E. Hinkins:

I quite agree with Dr. Reid in regard to the patient consulting the dentist. I do not think we should be dictated to by patients as to what to do. It so happened today that I had two patients in my office, one of whom had a continuous gum set of teeth. I could not see wherein an improvement could be made. but she said she would not wear the abominable things. I really would have complimented myself if I could have made such a set of teeth. They were made by a good dentist in this city, and were a credit to any man. The other patient had a new set of teeth. She was all teeth; I could not see anything but teeth when she opened her mouth, and she was immensely pleased with them. She said they hurt her gums a little, and I filed them down some. She was perfectly delighted with these teeth, and asked me if I did not think they were beautiful and artistic. I said, yes, they were. Here were two patients, one perfectly satisfied, and had a botch of an operation. while in the other case the operation was perfect. but the lady found fault with the work. It was an artistic piece of work done by an artistic man.

A little incident occurred to me while the doctor was reading his paper about artistic teeth. A few years ago I spent Sunday in a town, and as I could not go shooting I attended church. I had called upon a dentist in that town on Saturday afternoon, who said he was very glad to see me. I went to church that Sunday. and after the service was over he asked me what I thought of the teeth of those who sang in the choir. I said, "fine." They were all of the same color, form and size. He pointed to me with considerable pride that he had made and inserted all of the teeth in the mouths of the singers in that choir. By the way, this dentist is quite a musician himself. I could hardly keep from laughing when he told me that he had put in all of these teeth. He is considered a good man in his district. If I am not mistaken, he is a member of the National Dental Association. He seems to derive considerable satisfaction from having put in these teeth in the mouths of the choir of the same form, size, color, etc. It was to me disgusting to look at those teeth. I was very glad when the time came to get out of town.

My attention was called to the difference in color of the teeth some time ago by a general in the United States army. His wife had four sets of teeth, and she would not have a set of teeth or a denture where the cuspids were any darker than the central incisors. She liked the bicuspids a little bluer than the cuspids, and I was making for her a couple of sets of teeth at the time Dr. Royce read his first paper on that subject. I went to Dr. Royce, talked to him about it, and received a good deal of information from him about making these teeth. But I do not do a great deal of mechanical dentistry, as I think there are other men who can do it better than I can. If I confined my attention to this kind of work I might enjoy it. But there is a great difference in the patients that come to me. Some patients seem to know about what they ought to have from an artistic standpoint, while others do not seem to have the slightest idea. It depends largely on the dentist. I think such a man as Dr. Perry and others are better qualified for this work than the average dentist is.

DR. L. L. DAVIS:

There is not the slightest doubt that during the last twenty years a great deal more attention has been given to the saving of teeth than to any portion of prosthetic work in the practice of dentistry. This is doubtless largely due to the fact that dentists have been taught to save the natural organs, and the prosthetic side has been in the background. During the last two or three years, however, it has been coming to the front, and teeth or artificial dentures are made now to conform to the natural teeth and to the type and temperament of individuals more than formerly, because men of the character of Drs. Perry, Royce and Mitchell have made a study of this one particular branch and brought to us additional knowledge. Doubtless, within the next five or ten years a considerably greater amount of knowledge will be brought to light, and it only shows that the dental profession is advancing all the time.

For my part, I have enjoyed the paper very much, and as to the point that it is not possible for every practitioner of dentistry to reach the high degree of perfection he has pointed out, still I think it ought to be within the possibility of every student to come very near this mark, if the teachers in the colleges do their part, and certainly, as Dr. Brophy has said, the younger men, when they go out into the profession, if they are going to act as assistants to practitioners, this work will be required of them, and it is important to instruct students in every branch or particular that leads up to this high ideal of Dr. Perry.

Dr. J. W. Wassall:

Dr. Perry always writes well, and this paper is no exception to the rule. He has brought to his work a ripe experience, and has given careful thought to the subject. I do not know that I have ever heard a paper on prosthetic dentistry that appealed to me as this one has tonight.

Referring to the points made by Drs. Reid and Davis, I do not think our ideals in this work, as in any other work can be placed too high. Because we do not reach them is no reason why we should not strive to attain them. The higher they are, the higher we are apt to go.

With regard to the variation in color in different natural teeth and the failure of the manufacturers to make artificial teeth to correspond, it seems to me the only way we can make any effect upon the manufacturers is to make some appeal to them, and I do not know of any better way than to have it come through dental societies. I think the manufacturers will be only too glad to supply our wants if we only make them known. If the matter was brought to them in a forcible way by a committee of the Section on Prosthesis of the National Dental Association, some attention would be paid to it. That would be a beginning, and there is a crying need for some conformation to the wishes of the profession in the matter of correct colors of artificial teeth. Dr. Perry is just the man to look after that. If there is an effort made through this Society to have this done in the National Dental Association. I think Dr. Perry is the one to attend to it. Something ought to be done.

Dr. Brophy:

Why not do it here?

Dr. Wassall:

It can be done and it should be done.

Dr. Brophy:

Why not present a preamble and resolutions as coming from this Society, to be used as a part of our transactions, which will lead up to the national association afterward?

Dr. Wassall:

With regard to the individual practitioner giving his own thought, attention and supervision in the selection of suitable teeth, when it becomes his duty to make artificial teeth instead of delegating that part of the work to a mechanic, I think Dr. Perry is entirely right in calling attention to it and in criticising such negligence. The busy operator, who occasionally is called upon to make artificial teeth, as a matter of fact, should not do it unless he can and will give the same thought and care to it that he does to other branches of his work, and if he is incompetent to do it, he should get a specialist to do it for him, advise with him, consult with him and pay a fee for it.

Dr. A. W. Harlan:

I would like to call the attention of the Society to the fact that the International Dental Congress, held in Paris in 1900, adopted a resolution asking manufacturers of artificial teeth throughout the world to so change the shape and sizes as to make them conform more nearly to the natural teeth. You will find that resolution in the list of resolutions adopted on the last day, the closing session, and it has been published in English, French, German, Italian, Spanish and every other language in the world, and if you will look at the transactions of that Congress or *The Dental Cosmos*, which published a translation in 1901, somewhere in May or June or July, you will find that resolution printed in English, so that you can read it.

Dr. Perry has written a paper on the physical organization of man and something with reference to the replacing of his teeth when he has lost them. I do not believe that I was fitted to make artificial teeth, and I do not make them. The man who studies and makes artificial dentures a special business is the man who is best fitted to do it. I do not supervise the making of artificial teeth in my own office. I do not pretend to do it.

I think there ought to be three or four classes of dental practitioners: One of them that will devote himself exclusively almost to the correction of irregularities and deformities of the teeth; another that will devote himself to the treatment of diseases and injuries of the teeth, and another that will devote himself to the replacement of teeth when they are lost. It may be there can be a subdivision of those.

The question of pay enters into the matter of making artificial dentures from the beginning, and if I can make $50.00 or $75.00 a day in doing something that will suit me and please me better, and for which I have some special aptitude, I am not going to avoid it for the purpose of making artificial dentures that will only pay me $15.00 or $25.00 a day, as it is well known that the remuneration for making artificial dentures is low. There are not perhaps more than a couple of men in this room who can get a fee for an artificial denture which is at all commensurate with the services rendered in doing other operations in the mouth around the teeth. Once in a while a man will get a fee of three or four hundred dollars for making a set of teeth, and many times he will have the worst kind of kick or complaint coming from the person if he tries to get $75.00 for a similar operation. What are we going to do to bring this work up so that it will be more remunerative? We are not practicing dentistry for the love of it. We must have money to pay rent, to buy food and clothing, to educate our children, to travel, to surround ourselves with objects of art and luxury, etc. I am glad a paper has been written on this subject. I hope it will stimulate some men who wish to devote themselves to this particular branch of practice, to raise it so that it will be high and enable them to get a reasonable remuneration for their services in doing this class of work.

Look at the lawyers and the doctors in the city of Chicago! Look at the men who are paying special attention to internal medicine, general medicine, and some other specialties. There is not a man in the room that earns an income which will compare with those men. And you know it perfectly well. Once in a while there may be a man who will get a six hundred dollar fee, or something like that, and we all stand here and talk about the glories of the dental profession, etc. I venture to say, that there are half a dozen men here, who, if they were practicing law, could earn $75,000 or $100,000 a year, if they spent as much time and thought on law as they do on dentistry. If I were in the general practice of medicine this minute, I could show accounts on my books that would compare favorably with those of Billings or any other man in the city of Chicago, because I would do the same thing that he does for his patients, and I consider that Dr. Wassall, Dr. Brophy, or Dr. Johnson is absolutely as well qualified to serve his clientele for the things he is consulted as Billings, Quine, Brower, or any of the best medical men in the city of Chicago. But our books do not show half as large fees as they get. I have been practicing dentistry for thirty years, and while I have done pretty well, I do not do half as well as I think I ought to do. I certainly could not do it by making artificial teeth, because I am not fitted for it. I do not care for that branch of dentistry. I never cater to it. Just now there is beginning to be a revival because a great many of the operations intended to save teeth have been failures; because the dental profession has not any fixed idea. Let us take the methods that are used to save teeth; from month to month and from year to year they change from one method to another, showing that the average practitioner has no fixed ideas to save teeth. Look at the methods of filling the roots of teeth, as practiced at the present time. Go into fifty of the dental colleges in this country and you will find the teacher of operative dentistry, or the teacher of dental therapeutics will instruct his students that the best method of filling the roots of teeth is with gutta percha. In another school students are taught that the best method of filling the roots of teeth is with oxyphosphate of zinc, or oxychloride of zinc, etc., showing that the profession has no fixed system for doing one of the things that has to be done every day.

A paper was read before the Odontographic Society a little while ago (I think last February) in which the author tried to show that there was no method practically except one that was perfectly complete in filling the roots of teeth, so that there would be no infection. I do not believe this. I do not care anything about laboratory experiments in general because I think they are unreliable, so far as showing the actual truth is concerned. I do not mean that the experiments conducted by this gentleman were not correct. If we want to achieve the best results and get some returns for our thought and labor we have got to unite and stand together and make things so absolutely clear to the public that they can not get away from them, and this must be done every day. It seems to me, there is nothing that comes up that is foolish, ludicrous, and absolutely illogical but what the dental profession will run after it. You all know that. We have to have definite rules of practice. One man will get up in a society meeting and say the only way to save a tooth is to fill one-third of the cavity with amalgam. and then cover it over with gold. Another one says you should fill one-third of the cavity with tin and gold, and the rest with gold. Another tells us that we should prepare the cavity in a certain way; that there is a flow of metals, etc. One man says you must practice extension for prevention. He cuts way nearly the whole of a tooth, and then restores it with gold. Another one believes in putting in inlays, and says that one of the good things in connection with the insertion of inlays is that it insures good preparation of the cavity. One must be bold in preparing the cavity, and in so doing he will cut away enough, so that he can get a perfect impression of the cavity. make a matrix. and make a filling to put in there. If we could only put these things down and get some system, we will have something to work on, and then we can present a united front to the public and make them pay for the work we do.

There is not a restaurant or business in this city but what has raised the price of things we use and consume. The prices have been going up and up until they are twenty, forty, and even fifty per cent higher than they were two or three years ago. Do you suppose the dental profession of the city of Chicago has raised its charges for work any higher than they were three years ago? Let any of you consult a specialist in medicine, without telling him you are a dentist, and see how much he will charge you. We need something in the dental profession at present that will put the strongest kind of cast steel into the backbones of practitioners so that they can stand up and say, "Yes, sir. ten dollars. twenty dollars, or fifty dollars," for something we often give for nothing to the public.

Dr. E. R. Carpenter:

The paper of Dr. Perry has brought out a good deal of fruitful discussion. It is timely and enjoyed very much by all.

There is one special point in the paper I would like to speak of, and that is in connection with the remarks that were made as to the aid of the patient. I must say, personally, I find myself very much at fault in eliciting the support of the patient as to the kind of teeth he originally had. About the only information I am able to get from them is that the teeth were large or small; but as to the bite, general fullness, etc., I have not been able to get very much help from them. A few times I have requested a member of the family to make suggestions or criticize when a denture was tried on base plate, and sometimes the patient would object to that. The patients did not seem to want the members of the family to know anything about it. I have been unable to elicit very much help from the patient in regard to that one matter.

Dr. Perry (closing the discussion):

I am much obliged to the gentlemen for what they have said in regard to my paper. There is no doubt in my mind but that art is poorly paid for. But this was not a part of the paper. The paper did not discuss the matter of remuneration, but I considered the relation of the person's form to the tooth form, and a plate with the teeth might be selected to conform more nearly to the physical organization of the patient. I know it does not pay well to do this work. However, I do not feel so miserable because I can not make a hundred thousand dollars a year. I am glad to get a living.

In regard to the remarks of Dr. Reid, the aid of the patient in the sense which he referred to is not desirable. There are patients for whom you may make a set of teeth and say nothing about it. There are others, for whom you make sets of teeth, whose assistance will be of great value to you. You need the assistance of any patient who is capable of appreciating your work, and as I stated in the paper, no man ever made a really artistic set of teeth who did not have that assistance. I do not expect a patient to tell me how I am going to make them. I put in a set today for a lady who is very appreciative. She made the remark to me, "What a blessing it is that we have the profession of dentistry. It would have been a very great disfigurement to me to have had to do without this cuspid of mine, and I declare it looks as well as it ever did." Of course, we have all done those things; but the sympathy of that patient did me a lot of good.

The commercial side must be in our transactions. We must make some money; we have got to educate our children; we have got to surround ourselves with the comforts of life, and with as many artistic things as possible, and I agree with Dr. Harlan that it is our duty to do this; at the same time, it is a fact that there is only a small percentage of people who can afford to pay such fees. I will take issue with Dr. Harlan in this. that the lawyers and the doctors of Chicago are not making as much money as he thinks they are making. There are a lot of lawyers and doctors who are not worth thirty cents in money. I question whether as a body the legal profession is any better paid than the dentists as a body. True, there are lawyers who get large fees; some, I presume, have an income of $100,000.00 a year or more, but there are thousands and thousands who have very small incomes. Some of them can not pay their bills. I agree with the general statement that the possibilities of making large fees rest with the physician and the lawyer as against the dentist. I thank you.

CHICAGO DENTAL SOCIETY.

A regular meeting was held April 5, 1904, with the President, Dr. Don M. Gallie, in the chair.

Dr. C. N. Thompson read a paper on "An Estimate of Porcelain as a Filling Material."

DISCUSSION.

DR. W. H. TAGGART:

Dr. Thompson has entered into so many details of the process of filling teeth with porcelain. that it would be almost impossible to pick them all out and refer to them. He has contributed a very excellent paper. and the fact that we have such a large attendance this evening is an indication that porcelain is a practical subject and one which attracts the attention of dentists of the present day. In saying this, I do not wish to cast any reflections on our program committee; but if the members of the committee will read the signs of the times as they have appeared during the last year, and in previous years, they will find that such subjects as this that are thoroughly practical will draw large audiences, and that subjects of the more theoretical kind. or those tending toward the medical side of dentistry are not the ones that will draw large audiences. Dentists are thoroughly interested in this broad and better side of it, and the progress dentistry has made in the last forty or fifty years, or during its life, has come very largely from the practical and mechanical side of it. There is no part of dentistry which it seems to me is going to fill such a thoroughly satisfactory and artistic part of it as the restoration of teeth with porcelain.

Dr. Thompson has been rather conservative, possibly more so in his paper than he is sometimes in his practice. In other words, I think during the middle part of his paper there were allusions made to the frailty of corners in central and lateral incisors. This might make a great many believe that these were not the places for porcelain; that it was too frail for such places. But toward the latter part of his paper he stated that they were almost ideal places for the use of porcelain. I do not feel as if there are many limitations to the use of porcelain in the anterior part of the mouth. and the chipping of the enamel and of the porcelain are not features, to my mind, which ought to interfere with our using it. I find the more skill I acquire in the preparation of cavities, and the more skillful I become in making the restoration to fit in the cavity. the less trouble I have with chipping. All must have a certain amount of experience, and we learn almost intuitively what part of the corner to leave, what part of the enamel to allow to remain, and the fact is that as our skill increases we are able to make restorations that look well, that allow us to cut more freely than we would do if we were putting in gold fillings. We cut so freely that what would be the weak part, if allowed to remain, that is. the corner or frail edge, becomes the strong point, because we have been allowed to cut freely as we would not be allowed to do in case we were inserting a gold filling. The fact that we can cut freely and give good. firm. square margins to the enamel will make up for the lack of bevel which we have to use in gold work. When these margins are square and the restoration well fitted to the cavity. it is set there with great strength.

Since I have become more skillful in the manipulation of porcelain, I find chipping is really a secondary consideration, and it does not affect my idea as to whether a tooth shall have a porcelain filling or a gold one. In fact, it never enters into consideration.

Dr. Thompson does not advocate porcelain fillings on the grinding surfaces of molars. There are a great many grinding surfaces in lower molars in particular, where either an amalgam or gold filling would be quite as conspicuous as a gold crown would be. In a gold crown you really only see the grinding surface of it. Deep cavities that take in the grinding surfaces of lower molars have got bulk of porcelain in them, and the margins can be prepared in such a way that there is no lack of strength to them. I saw a filling that was put in such a cavity as that three and a half years ago.

I had the privilege of reading Dr. Thompson's paper last night. He spoke of one factor, namely, of examining the filling under a magnifying glass, which I had not done on molars before. I have always done it with centrals. I took particular pains when the patient came in with that filling today to examine it under a magnifying glass, and I did not see the chipping that Dr. Thompson referred to. It gave me renewed courage and I felt as if that there was one of the places where a porcelain filling was thoroughly applicable. Let us take such cavities as I have heretofore crowned, where the restoration with metal would have been unsightly, and possibly the pulp is alive in the tooth. and may be one-quarter or three-quarters of the tooth needs a filling, but the neck of the tooth and gum are healthy, and all conditions are perfectly normal around the neck of the tooth. Such teeth as that I used to cut off and crown. Now, I restore them with porcelain, bringing them up to full occlusion. In those cases porcelain in large bulky pieces protects the margins, and I have quite a number of them that I formerly would have been compelled to crown. Take the pitted teeth, the lower first permanent molars, pitted from any of the eruptive diseases during the formative period—such fillings as those are oftentimes lacking in occlusion. They look as if they should have grown up another eighth of an inch. Such cavities are ideal ones to fill on the grinding surface with porcelain. The mouth and surrounding tissues take more kindly to porcelain than any other material that can be used.

In alluding to the different porcelains, I have never liked the word body, as it does not amount to much. As to the different kinds of porcelain on the market. I think it is well for the dentist to take hold and work all of them. I have ever since I began to do porcelain work, and I have been practically what you might say a high fusing porcelain man, to make a distinction between that and a low fusing man. I must say, gentlemen, that there are possibilities in a low fusing body, as represented say by Dr. Jenkins' outfit, which we must not ignore. In the larger restorations I have been using a high fusing body, for the reason that I wanted my lines to stand up good and bold; whereas the lower fusing porcelains are apt to squat down under heat. We do not know how to handle properly low fusing porcelains as yet. Within the last six months I have been using the Jenkins' low fusing body for these restorations, and I find what I formerly thought were objections to the Jenkins' low fusing body are not objections at all, but it was only a lack of ability on my part to handle the material. Take, for instance, in a low fusing porcelain, where you want restoration, by attenuating the point, bringing it out to an exagerated degree when the heat comes on it, fusing it, that attenuated point settles, and when you have got the right bake on it, it stands out prominently as a cusp. So I have to take back some of the things I have previously said about low fusing porcelains. I do not mean by what I have said that I have gone back on high fusing porcelain, because there are certain restorations to be made in which it seems we can not get along without a high fusing porcelain. I wish there were forty or fifty more shades and kinds of porcelain to use. All of them have their merits. However, there is a decided advantage in using lower fusing porcelains in the smaller cavities. The Jenkins' porcelain has physical properties according to the manner you manipulate it, and those physical properties make it better suited for smaller cavities, than the higher fusing porcelain. As an illustration, let us take the high fusing porcelains; they do not work well with alcohol, but Jenkins' porcelain does. It seems to me, it is just the vehicle to carry and handle it properly, and Jenkins' porcelain does certainly squat down (I can not find a better expression to use), and it is that one feature which low fusing porcelain possesses that is the strong point.

Another point: When we are beginning the use of porcelain, we must not allow it to come in competition as regards price with gold fillings. When one becomes expert in the use of porcelain, there are lots of cavities one can fill with it, especially the larger restorations, much more quickly than with gold. But in the cavities in the front part of the mouth the question of dollars and cents ought not to be considered or interfere with our work, because you want the proper color, and make everything absolutely satisfactory. One porcelain filling may be all right, but there are times when you may have to make two of them, sometimes three of them, before you get one that satisfies you, and I should say that if you are satisfied with the first one you make, you will never be a good porcelain worker. Try and get a good enough fee to justify any mistake that you might make. Take, for instance, a fee of $15.00 for a porcelain filling or inlay, you might be able to put in a gold filling or inlay for $10.00. Let us suppose you make a porcelain inlay and the color is away off, you are justified in condemning it; you are wasting time, but all of that time ought not to be charged up to the patient, because you are acquiring knowledge and skill by so doing in that particular line of business. Do not take hold of porcelain work with the idea of making more money out of it until several years' time has elapsed; learn to use it right, then you will be able to look your patient square in the face and charge him a good fee for your work, and if you do not have to make a second one, you can charge it up to your skill.

Dr. W. T. Reeves:

I had the pleasure of reading Dr. Thompson's paper, and I want to congratulate him on presenting a conservative view in such a complete manner as he has. There are many features in the paper that I take exception to, and I have made a memorandum of possibly more things than I will have time to refer to.

The essayist said: "Porcelain has passed the zenith of general attention, and settled in its place as one of the best filling materials for certain cases." In regard to porcelain before the dental profession, it occupies a position different from any other material that has ever been introduced to the people by the profession. There have been a great many things brought out as regards different methods, etc., that have depended upon dentists for their advocacy. Take it today in crown and bridgework, while the majority of dentists, who are doing crown and bridgework, consider it best, today you can go into any office and if a dentist desires to recommend a Richmond crown, the patient takes it. But with porcelain for a filling material, we have a different condition. Up to the present time it has depended largely for its introduction on dentists, and has been advocated by them; but today the laity are finding out the advantages and desirability of having porcelain for fillings for their teeth, and they are demanding it of their dentists. They are not satisfied with being put off, consequently it is the people today who are forcing dentists to take up the work. I think porcelain is going on to still greater usefulness through being forced on to the dentists by the people.

The essayist spoke of estimates and comparisons, and that any filling to be called a so-called permanent one should stand at least ten years. We have been putting in porcelain for ten years or thereabouts. My first porcelain filling was put in eleven years ago last month. At that time the material was indifferent. We have better materials today to work with than we had then. In one sense the essayist speaks advisedly as regards comparison. We are safe in making comparisons and drawing conclusions from the results that have been shown in the mouths of people, and particularly the young in whom gold fillings failed in one, two and three years, and porcelain fillings are standing and preserving the teeth perfectly. If in the comparisons of that kind which we make we find that the use of porcelain is an advantage, I think the same condition will obtain in those cases that are less susceptible to caries and destruction of their teeth. If porcelain is doing well in that class of cases, it will do equally as well and better in the nature of permanent filling.

I take exception to the doctor's statement that the porcelain enthusiasts, as a rule, are those whose gold fillings are failing, and for that reason they are enthusiasts because porcelain fillings are doing better service. I myself would not be afraid to let any of you see the gold work I have done in the past, and I could name plenty of dentists in this town and in other places who stand high as gold operators, yet who are now enthusiastic porcelain workers.

He speaks advisedly in regard to the beginner devoting an equal amount of time to the mastering of the use of porcelain that he did with gold, and if he does so he will become an equally successful operator with porcelain as with gold. I think he will save more teeth for his patients when he becomes equally skilled in the use of porcelain as he has become in the use of gold.

He referred to the four qualities of porcelain which make it superior to the use of gold as a filling material—the appearance, thermal change, the glaze, and ease of insertion, all of which is very true.

In the paper there was something said about cavities that came from chemical erosion, but I do not recall hearing that part of the paper read, although it may have been. He said that porcelain was not indicated in such cavities, on account of the necessity of extending them beyond where the action of the acid would affect the teeth. If you put gold in such cavities, you are going to have recurrent decay much more readily and quickly than if such cavities were filled with porcelain. In this connection I want to give to the Society a little method that I first heard of at Ann Arbor when I was recently there, which Dr. Runyon, of South Haven, presented. It is a method of obtunding for excavating and preparing the anterior teeth. It was used by a rhinologist when he sat in Dr. Runyon's chair for an operation. The doctor was surprised at the operation being performed without any apparent sense of pain to the patient, and he afterward asked what it was. It seems to be an easy and safe way to employ cocaine. I have used it forty or fifty times since then, with complete success, and in connection with erosion cavities one can obtund the teeth so that he can extend the cavities beyond the action of the acid by this means. The method is this: You saturate a pledget of cotton with a five per cent solution of cocaine, and introduce it into the nostril upon the side on which you are going to operate. It will obtund the three anterior or superior teeth, so that you can prepare these cavities without causing any pain to the patient. The removal of the pledget of cotton from the nostril will bring about a return of sensation to the cavity inside of sixty minutes, and its replacement will obtund in the same length of time. I have found it effective, and I am very glad to have the opportunity to spread this information to those of you who desire to employ some means of that kind.

The main point of the doctor's paper seems to have reference to the edge strength of the material. As Dr. Taggart has said, and I agree with him, I am not bothered in that way. I think it comes largely from the preparation of cavities.

All margins, in all localities, should be prepared so that the joint of the inlay is made on the principle of a lap joint. When a cavity is prepared in this way, and the inlay is made to fit, you will have a good joint. You will have very little washing out of cement and very little danger in chipping. A butt-ended joint will give you one that will have at least twice the amount of joint that a lap joint will give you. Margins in bicuspids and molars can all be prepared so that you can get a lap-ended joint in the inlay fitting to your tooth. When we have inlays in molars and bicuspids that have been in position for five, seven, eight years, and longer, preserving these teeth perfectly, with no recurrent decay at any point in connection with them. I think it is going a little too far to say that it becomes necessary to take a magnifying glass in order to find out whether you have any chipping of the margins or not. If to the eye these fillings are standing, and above all preserving the teeth, I believe we have in modern porcelain the best material with which to restore extensive cavities in bicuspids and molars.

Dr. F. E. Roach:

I have nothing but words of the greatest praise for Dr. Thompson's presentation of this subject. I certainly agree with him in his conservative stand in regard to the use of porcelain as a filling material. There is the one great danger in the use of this material of becoming over-enthusiastic and stepping beyond its limitations, going too far in its use, and that to my mind is a danger that we should try to avoid. It is, indeed, a very fascinating part of our work when we become interested in it. The fact that we can approximate the restoration of the lost part of the tooth, that we can approximate the appearance of the tooth, and our patient go away well pleased with its beautiful and artistic effect, and that it can be done so easily as regards the physical exertion it requires, is a source of great satisfaction. It is a fascinating material to use, and for that reason we are liable to go beyond the limitations and use porcelain where we had better use some other filling material.

I hardly know just what part of Dr. Thompson's paper to discuss, for he has covered the subject in such a broad way, and, while not entering into it in detail, I believe there are many points that can be brought out to great advantage, of which he has said nothing, only touching in high places, you might say. Personally, I believe there is a great field for good work in regard to cavity preparation for porcelain inlay work. At present the profession are at sea as to the form of cavity preparation. The fundamental principle of the successful use of porcelain is proper cavity preparation, yet very little has been done along the line of formulating and classifying cavity preparation for porcelain inlays. The general teaching has been that we must prepare our cavity with diverging walls, without under-cuts, and sharply defined margins, etc., and too little attention has been placed upon anchorage. I am a little radical in regard to anchorage for inlays. I do not have the faith that some operators have who depend on the adhesion of cement for the retention of inlays. I want some means of retention supplementing that of cement adhesion. It is my belief that this phase of the subject has not received due consideration.

I fully agree with the point that Dr. Reeves has brought out in regard to making a lap joint. This applies particularly to cavities in molars and bicuspids. I think it is almost imperative if we expect to retain these frail margins of porcelain that Dr. Thompson has cautioned us about. That is the weak point in porcelain inlays in molars and bicuspids, especially—frail margins. The cavity should be so shaped in molars and bicuspids that the finished inlay will present obtuse rather than acute angles on occluding surfaces. And if you have a square butt-end joint, such as Dr. Reeves illustrated, you will have that chipping to a limited extent in almost every case, but if you make a lap joint, such as Dr. Reeves has recommended, and has illustrated on the blackboard, chipping would be largely obviated.

Dr. J. N. Crouse:

I want to say a few words in regard to porcelain as a filling material. I have no doubt that porcelain inlays have greater possibilities than I think they have at present. Dr. Taggart, whom I regard as one of our most skillful dentists, did not tell us how to do it. I want him to describe his method minutely. Of course, when one has acquired the necessary skill to do these things, he can do it, but what we want is a demonstration of how to do it. We want to see how it is done, otherwise such a discussion as we have had to-night does not amount to much. We are here to find out how this thing is done. Take a tooth with possibly one-half or three-quarters of its surface gone, how to bake porcelain in there and get a perfect fit is more than I can do. If these experts in porcelain can tell me how, I would be very much obliged to them. I want them to tell me how to get rid of shrinkage, which is such a large element in big fillings, and I think so much shrinkage in big fillings is one of the great factors of failure in the use of porcelain as a filling material.

Dr. Taggert:

Don't you mean warpage?

Dr. Crouse:

No; I mean shrinkage. It is said that porcelain in a tooth mold shrinks about one-third, consequently the mould is made that much larger than the tooth will be after it is baked. That is what I mean. In order to determine whether I was wrong or not, I have taken a big cavity and attempted to put in a porcelain inlay, but there was a large amount of cement around the edges when I came to fit it in. I don't pretend to know. I have an old molar tooth I picked out of one of my drawers that had a porcelain filling in it, which was put in twenty years ago, but the tooth came out on account of pyorrhœa. I used porcelain because the tooth was loose rather than a gold or amalgam filling. I think gold inlays have a greater field in some cases than porcelain.

Dr Reeves said something about decay occurring about gold fillings, but that as soon as he used porcelain the decay stopped. Let me give another illustration: I have in my mouth four or five cavities that have been there for twenty years or more; they have never been filled, as I could not get any filling material that would save the teeth. Now, you might just as well turn around and advocate open cavities. It is just as logical in my opinion as what the gentleman has said.

I am glad Dr. Thompson read this paper. I consider it conservative; it is correct in its logic, and a good guide for the young men to go by.

Dr. E. J. Perry:

I have a practical suggestion to make. Dr. Crouse wants to know how to make a big inlay fit, and I thought I would tell him. I have made a great many inlays that do not fit. I know how good it is to tell the truth sometimes, and I think it is a good thing in a discussion to do it. So I will acknowledge to you I have made a great many inlays that do not fit. Some of my professional friends have said they have no trouble in fitting inlays. I always look at them when they say it. This material shrinks and there is trouble about the fit of the inlay, and you can not deny it. Some time ago I made an inlay that did not fit. It suited me as to color, and I took the platinum off of it, and I made another one. I made a new matrix in the cavity, carefully burnished it in, and I filled the cavity with the mixture of Mr. Brewster's enamel. He calls it colorless, and I settled the misfitting inlay into it very carefully, being careful to absorb all surplus moisture. The point of that was, shrinkage had all been baked out of the original inlay, and the result was the most perfect fitting inlay I have ever made. I simply offer that as a suggestion. You know there are enamel or porcelain rods that are furnished to be used in large inlays, for the reason that shrinkage has been baked out of them, so that in baking the inlay you will not have as much body of new porcelain to shrink. If you have such trouble, and some of the common people do, just make your inlay a second time; make the inlay and make a new matrix, settle the inlay into it, and you will have as a result a good fitting inlay.

I want to say, before sitting down, that it is a very amusing discussion to me to see these extremists get up and talk. The truth does not hurt anybody, and the truth is, there is an inherent quality in porcelain, and that is, its lack of edge strength, and it will not stand upon the grinding surfaces of molars and bicuspids, wherever the stress is great, and you may talk until your hair drags on the ground, and you can not change the facts. That is what I like about Dr. Thompson's paper. He puts material in teeth which has edge strength, namely, a gold inlay.

Dr. W. V. B. Ames:

I have enjoyed Dr. Thompson's paper very much indeed, and I think that the confidence he expressed will convey the idea to any of us that he can make a porcelain inlay or a large restoration which will practically fit a cavity, and those who have followed this question of porcelain have become satisfied that while it is easy to make a misfit, it is also possible to make a well fitting large restoration, and with cement adhering as it will to a surface of dentine and by treating the reverse surface of the inlay for adhesion of cement in a way I want to describe, there ought to be a highly successful outcome.

I feel that I have dug out a little matter recently which will be of interest to those present because they are interested in this inlay question. It is nothing more than a means of enabling you to get a stronger attachment of cement to the porcelain surface. I do not feel that I can let the opportunity pass without mentioning it. Taking three parts of porcelain (whatever you are using, whether it be high or low fusing) to two parts of cement powder, supposedly zinc oxide, and preferably not too fine; make a mixture; wet this as you would porcelain; paint the merest film possible in the bottom of the matrix, absorb the surplus moisture, which will enable you to place plain porcelain without disturbing this layer, fill the matrix, and complete the inlay, as if the porcelain and zinc oxid mixture were not present. On stripping off the matrix you will have a slightly opaque layer, which is silicate of zinc, with zinc oxid in excess, simply held in the texture of that material. In addition to a chemical attachment this silicate of zinc in its formation will become slightly porous, giving you mechanical anchorage something analogous to that from etching by hydroflouric acid. I have a small specimen showing what this mere film is. You can scarcely see the opaque layer on the piece of porcelain, and the cement is adhering to it very tenaciously. If an inlay has been completed and it is desirable to give it such a surface, take just such a mixture of a lower fusing porcelain and zinc oxid, and bake upon such surface as would be indicated, compensating of course in some way for the thickness of this layer.

Dr. J. G. Reid:

I did not hear the paper, as I was out of the hall at the time it was being read. I would simply criticize one thing I have heard in the discussion, and that is, we will find experts in any line of work who can not draw anything on a blackboard that is fit to look at.

To make things interesting before a body of men like this, the men who are designated to discuss these questions should come here prepared with models and preparations, and show distinctly to each and all of us how they do this work. Then, we can learn something. Those of us who have to sit and listen expect to learn something about porcelain inlays. I believe this to be a part of the business of those who read papers and discuss them. This large audience here tonight has come to learn something about porcelain inlays, how to put them in, but there has been nothing to show how it is done. I am criticizing that feature of the work because I am interested in porcelain.

Dr. W. H. Taggart:

I do not want to take the remarks made by Dr. Perry as a personal affair, but I want to say for the benefit of my venerable friend that something like eighteen years ago, when the construction of crowns and bridges was to a certain extent in its infancy, and I had been doing this work for a number of years, and had found that if a tooth needed a crown, or if a mouth needed a bridge, it needed that crown more than the tooth did its pulp, he got up at a dental meeting in his usual style, with his hands in his pockets, and sat down on Willie. I made the statement at the time, I think, that it was an impossibility to properly construct a crown, or to properly construct a bridge, on a live tooth. Dr. Perry said any man who required that all teeth on which crowns were to be placed should have dead nerves had a heap more nerve than he ought to have. I felt a little humiliated at the time, but after getting my second wind I told Dr. Perry that if he had been fixing crowns and bridges without destroying the pulps, he had undoubtedly met with some failures. I told him to go home and destroy the pulps under these crowns and bridges, and then tell me later what he thought of it. The next year he had the manhood to get up in open meeting and say, "I owe an apology to Dr. Taggart, because in a discussion at Rockford last year I sat on Dr. Taggart rather heavily. I tried the method he suggested, and I do not put on crowns and bridges any more unless I go through that process, because I have saved more teeth that way than the other." Possibly Dr. Perry, after alluding to so-called experts or extremists, in a year or two from now will find out that these inlays can be made with sufficient edge strength if the cavities are properly prepared.

With reference to the criticism of Dr. Crouse, I corrected what I supposed was an error on his part when he called attention to the shrinkage of porcelain. Shrinkage of porcelain and the warpage or distortion of the matrix are two different things. I never put in a porcelain filling of any kind or a restoration but what there is a vast amount of shrinkage—perhaps one-fifth shrinkage, and while some of the manufacturers of porcelain materials used to say that it takes two bakings to make an inlay or crown, I find that I can not make them in less than four or five bakings.

A great many points in the discussion have been far-fetched. All of us have not the ability to express ourselves in words as clearly as we would like, and for that reason Dr. Reid's remarks with reference to learning to draw diagrams were very well put. We are all used to seeing things through practically the same eyes, but we may not understand language at times. Expressions which might suit me may not be understood by you, but by looking at pictures we come down to a common plane.

C. N. Thompson (closing the discussion):

I feel satisfied that I have yet much to learn about porcelain and its manipulation. The future may have much in store for us, but I believe it is possible to err in its use as much as in the use of other materials and have aimed to keep on the safe side, away from the danger line as shown by failing margins on masticating surfaces.

Owing to the adhesive setting of these fillings frail enamel can and should be retained far beyond the point thought safe for gold, and particularly frail incisal corners resulting from extensive proximal cavities, because the main feature in all cavity formation for porcelain is to prevent the extension of the cavity outline into localities that are exposed to either incisal or occlusal wear. Therefore incisal corners even though frail, if sound, present an unbroken incisal edge, the margins of the filling being proximal and subject only to disintegrating influences, and cement supported comers seldom fracture.

Relative to cavo-incisal enamel formation the strongest presentation is to concave the pulpal wall slightly from incisal edge down to the dentin.

Extensive cavities in molars and bicuspids such as a mesio occlusal distal, where the whole coronal surface is to be restored, are cases wher porcelain is indicated. If appearance is considered a factor, however, gold inlays will last longer in such cavities.

With regard to what was said relative to the shrinkage of porcelain, I desire to say that it is one of the prime factors in most misfits, to illustrate: bake a small amount of porcelain onto a perfectly flat piece of inlay platinum and note the manner in which the shrinkage has drawn the platinum out of line. In large cavities shrinkage may be taken care of partially by dividing the carved porcelain filling before baking, and using lower fusing bodies as the filling progresses, but the surest way to secure good marginal fit is to burnish to the cavity after each fuse in the furnace.

FIRST DISTRICT DENTAL SOCIETY OF ILLINOIS.

REPORT OF SUPERVISOR OF CLINICS.

BY R. M. PEARCE, D.D.S., ROCK ISLAND, ILL.

Dr. O. M. Daymude of Monmouth, kindly consented to fill vacancies caused by absence of Drs. Ralph and Fred Parker. The doctor is to be commended for taking the places of Drs. Parker and his action was appreciated by all. Not only in the preparation of the cavity but in the amalgam filling inserted (with use of matrix) did he acquit himself most creditably.

Dr. G. W. Smith, Virginia. Table clinic. Vulcanizable gutta percha for repair work. He was very interesting.

Dr. L. O. Green, Chicago. Extracting under the influence of a local anesthetic. The patients, two in number, pronounced the operations, from their standpoint, successful.

Dr. W. E. Mabee, Galesburg. Gold filling, using screw post for retention. Cavity, mesio-incisal. The filling was completed in a remarkably short time and when finished presented a beautiful appearance. I am fearful the surface may become pitted in time, due to size of plugger points used in its insertion. To my mind, they were a little too large, consequently absolute condensation was not secured. Smaller points are my only suggestion.

Drs. J. W. Adams, Knoxville, and M. W. Olsen, Galesburg. Correct articulation of the teeth. No claim was made except that plain teeth could be articulated without grinding. Apparently this was accomplished.

Dr. W. J. Morrow, Bushnell. Gold filling, using plastic for starting and finishing with foil. I, personally, do not see the advantage of plastic gold in starting. I would suggest that had the cavity floor been flat, no difficulty would likely have been experienced in starting filling, no matter what the material used. When finished, the filling appeared well done.

Dr. J. A. Curry, Streator. Table clinic on Davis' crown. Some good thoughts and ideas were presented.

Dr. W. O. Butler, LaHarpe. Extracting, using Hurd's gas apparatus. Assisted by Dr. C. O. Lovitt, LaHarpe, and Dr. F. A.

Lane, of Macomb. The two patients operated upon, stated from their point of view, the operations were a success. Some discussion (not in presence of patients) arose between the operator and one of his assistants as to the degree of success, resulting. I am informed, in conversion of assistant to gas method.

Dr. C. O. Lovitt, LaHarpe. Demonstrating a practical method of making a seamless gold crown. After fitting bands of baser metal to root to be crowned, a bite was taken in plaster, this was removed and contoured, the band filled with moldine and over all was placed a metal conical shaped shell or band made for this purpose. In the sides of the shell opposite to each other are cut two small narrow openings, through which are slipped strips of metal. Into this shell and over the model is poured Melottes' metal. When it became cool, the metal strips were removed. leaving in the die of Melottes' metal, incisions into which an instrument was forced to break the die into two pieces from about the model. The die was then slipped back into the shell and gold swedged into it. resulting in the production of an absolute fitting seamless crown at neck of tooth. This overcomes the objectionable feature heretofore experienced in constructing seamless gold crowns.

Dr. C. R. Taylor, Streator. The mechanical and chemical cleaning of the teeth. After making application of iodine, the rubber dam was applied to twelve teeth, including first molar on each side, and forced well down on roots, leaving an exposed surface, unobstructed from view by presence of either gums, blood, or saliva. The doctor used a number of instruments of his own make for which he claimed advantages. The patient's time being limited, the operation was not entirely completed, but the teeth from which the deposits were removed showed that great care had been exercised and work was well done.

It is to be regretted that so many clinicians from one cause or other were unable to be present. I think the practice of allowing one's name to be placed on the program when there is no intention of fulfilling the obligation is despicable, and should be frowned down. I make the above reference with no positive evidence on the subject as I do not know of the excuse offered by a single absentee but have heard it intimated that there were those whose names appeared on the program, who had no intention of being present when they consented to appear.

THE ODONTOLOGICAL SOCIETY.

A regular meeting was held at the Wellington Hotel Tuesday evening, May 24, 1904, with the president, Dr. E. R. Carpenter, in the chair.

Dr. F. E. Roach read a paper on "A System of Inlay Anchorage for Plates and Bridges."

DISCUSSION.

Dr. A. E. Matteson:

Mr. President and Gentlemen—I am extremely gratified to meet with you tonight, to partake of your good cheer and to listen to the paper furnished by Dr. Roach. Through his kindness I had an opportunity of seeing in his office this afternoon several practical cases demonstrating the application of this device.

Two of these cases had been worn for some time, they were held firmly in place—one more firmly than I would have considered safe—and yet there was no appearance of the least soreness or inflammation of the tissues or teeth to which they were attached.

There can be no doubt of Dr. Roach's having produced a valuable appliance, how extensive its application remains to be demonstrated. The ball and tube socket joint allows of a movement of the plate, which is demanded, when resting upon the soft tissues. The advisability of anchoring either of the parts in an inlay may be questioned, but it is not considered bad practice to anchor one end of a fixed bridge in a filling; however, "The proof of the pudding is in the eating." I have not been particularly impressed with the attachments previously introduced for the same purpose; they look very nice on a carefully prepared model, but the practical cases which have come under my observation were not a "howling" success.

I will suggest to Dr. Roach that he use an alloy of equal parts of gold and platinum for the ball part of his appliance; this metal will withstand a stress nearly equal to that of spring steel.

Dr. A. W. McCandless:

Mr. President and Members of the Odontological Society—Talking, as most of you know, is not in my line, but I wish to thank you for the courtesy extended to me this evening in inviting me to be your guest and to assure you that I appreciate the compliment.

I am not at all familiar with the appliance presented by Dr. Roach this evening, never having seen it until a few moments ago, but it appears to me to be constructed on correct mechanical principles. The criticism made by one that it lacks rigidity does not appeal to me, as that fact is very much in its favor, as a rigid piece would cause much more strain on the teeth used for anchorages, whilst this appliance, resting on the gum tissue, depends largely thereon for its resistance, and the attachments are simply to retain it in that position.

I have secured excellent results in the use of half-round clasp wire, fitted to the teeth at the point of their largest circumference with a lug of the same material soldered to the clasp in such a position that it rests on the occlusal surface of the tooth clasped.

These hold the plate firmly in place and are not apt to cause decay of the teeth, as such a small surface is in contact with the tooth structure.

This scheme of Dr. Roach's is certainly clever and neat. I believe it has sufficient strength for all requirements. I hope, for his sake and for the sake of the profession generally, it will meet his fondest expectations.

Dr. E. J. Perry:

I have the pleasure of being an office mate of the author of the paper, and therefore the advantage of a practical observation of the use of this attachment in the mouths of some of Dr. Roach's patients. I am well convinced that this device is a distinct improvement over any I have seen. The necessity of paralleling the other attachments and the warpage in making the work renders the insertion of the work doubtful and difficult. Whereas, with Dr. Roach's attachment, this is not necessary. The ease of application within the limits of its indication makes this device of invaluable service to us. The question as to whether it is safe to place the attachment in an inlay of gold or not depends entirely upon the kind of a case it is. The safest anchorage, of course, being the gold crown its range of application will naturally increase with familiarity of use. But its chiefest use doubtless will be, in partial lower sets carrying the molar surface. Dr. Roach well says of clasps, "They hold many cases out of place instead of holding them in position." If this device be limited to the partial lower sets, its value to us is very great. The device is new to you and, I see by the discussion, not wholly understood; but when you see its workings and the strength, ease of application, range of adaptability, you will grant all that Dr. Roach claims for it.

Dr. F. E. Roach, closing the discussion:

I desire to express my appreciation of the honor of being the guest of this Society, and I also wish to thank the members and others present for the many kind and complimentary words and the favorable remarks regarding the little device presented this evening.

Since the greater number of criticisms have been directed to the use of inlays for anchorage, I shall consider this point first. While I have emphasized desirability of the gold inlay as the means of securing the tube to the natural tooth, I would not be understood as advocating its indiscriminate use. To those unfamiliar with the construction of gold inlays and their remarkable strength, it would seem a hazardous risk to use them for anchors, as I have indicated. But when you fully understand the difference in the strain exerted by this attachment, and that of others, you will, I think, readily concede the feasibility of this form of anchorage. As a matter of fact, the strain is so slight that I do not hesitate to anchor the tubes in many cases in amalgam fillings. When you consider the absolute freedom of this ball and socket movement in this attachment you will readily appreciate how little stress is actually brought to bear upon the inlay. As a matter of fact, the greatest stress is in taking the denture out of the mouth, and since there is but little tendency to bind, if one attachment should be moved in advance of the other, so that about all the strain to be reckoned with is the friction bearing of the split ball in the tube, which is insignificant as compared to the stress applied to many fillings in the act of mastication.

Dr. Brophy says he does not see any advantage over the gold crown made to telescope a ferrule which is cemented over the tooth. In my opinion that means of attachment is adaptable to a very limited number of cases, and when its use is possible there still remains that seriously objectionable feature of strain upon the anchor tooth. I believe that Dr. Brophy will change his opinion when he fully understands my attachment.

Dr. Wassall's reference to the size and strength of the parts is a feature that I am glad to have discussed. That there should be a larger size I do not believe, but, on the other hand, I apprehend the necessity for a size smaller than the one shown in the models.

Dr. Taggart's statement that the attachment will be most useful in lower partial plates is quite true, and when constructed with the wire connecting the two sides will, in my opinion, prove universally more comfortable and useful to the wearer.

For these particular cases this attachment seems to be especially adapted. Not that it is not equally useful for all other cases, but that it is so well adapted to these lower partials, which are often very difficult.

THE FOURTH INTERNATIONAL DENTAL CONGRESS AND THE INTERNATIONAL DENTAL FEDERATION.

REPORTED BY R. C. BROPHY, M. D., D. D. S., CHICAGO, ILL.

It is a fitting and proper thing that the dental profession of the world should maintain a relationship which periodically brings them together in organized convention, for such meetings are essential to greater general educational advancement, and to that degree of universalistic progress consistent with humanity's demands upon the profession, and with its purposes and claims.

For the fourth time the International Dental Federation has held a Congress, and perhaps it may be credited with having been more successful than any previous one, though the writer is hardly in a position to judge it from this standpoint.

The Federation convened at 10:30 a. m., August 26, President Charles Godon, of Paris, France, presiding.

The address of President Godon delivered at this meeting is as follows:

"Mr. President, Ladies and Gentlemen: The first thought I wish to express here, in the name of the F. D. I., is a thought of admiration for your great nation, your mighty republic to which are bound by so many ties of sympathy and gratefulness all the citizens of the world who are fond of liberty, progress and civilization.

"Your magnificent exhibition is a new proof of the progressive genius of the American nation and deserves the first place among the manifestation of human activity. Hail to the splendid city of

St. Louis, the place of meeting, and thanks for the hearty welcome to us.

"And hail heartily to the American dental profession to which modern dentistry owes its most important progress and whose most eminent representative members are here with us. Hail to the members of the dental profession of the world who have assembled, and among them the members of the Executive Council, Harlan, Miller, Aguilar, and the members of the Commission of Education, of Public Hygiene, Brophy, Kirk, Zsigmondy, Roy, Bryan, Martiniier, Weiser and others, who have followed from the year 1900 every meeting of the F. D. I. through the world and have so taken an active part in its evolution.

"And while speaking of the devoted fellow workers of this great international work, let us not forget those who could not come, Cunningham, Förberg, Hesse, and those who have dropped by the wayside, Pichler, Frank, of Vienna, the author of the report on Public Dental Hygiene, Barrett, the late eminent Dean of Buffalo, who, with his warm and stirring eloquence, knew so well at Stockholm how to portray the high aim of the F. D. I. above national dentistry. We address a touching souvenir to their memory.

"Today we inaugurate in St. Louis the session that finishes the work of the first period of the F. D. I. We shall soon have to account to the Congress of 1904 for the mandate trusted to us by the Congress of 1900 and give them back our powers. I shall not make a long report of the work of the F. D. I. during the period of four years; it is a task of our General Secretary and devoted co-laborer, Dr. E. Sauvez, who has participated in our work from the beginning. I only wish to recall to you the principal phases through which the F. D. I. has passed.

"Born in Paris in 1900 from the enthusiasm of the twelve hundred congressists come from every part of the world, it uttered its first lispings in Cambridge the following year, in the old English university, under the presidency of the eminent professor of physiology, Sir Michael Foster, who determined the real philosophical formula, defining and limiting the action of the F. D. I. in order to make of it a great advisory council of the world's dentistry.

"Then next in Stockholm took place the session where in the midst of discussions for the working out of an international curriculum of education and the determination of the best conditions for the most effective public dental services was decided the meeting in St. Louis of the Fourth International Dental Congress, in which we shall participate next week. From that decision ensued a long, feverish and fruitful contention about the interpretation to be given to the powers of the Federation or its representative members and relative to the conditions of its intervention in the different kinds of professional manifestations; that discussion was long, as it lasted for more than two years, and the session of Madrid in 1903 was almost exclusively devoted to it; feverish, for it has caused deep discussions in the professional body, especially in the United States, and fruitful also, for thus it has manifested its existence to every one, the importance of its action in the proceedings of worldly professional life, and come to such a perfection of its constitution and rules that when confirmed by the next Congress they will secure for a long time, I hope, the success of succeeding periods.

"A cedar requires more time to grow than a reed, says the poet, but lasts longer. So, during those four years the F. D. I. has grown slowly, spreading its roots in deeper and deeper layers of the professional life of every country, covering worldly dental manifestations with its sheltering branches, wider and greater and more and more numerous.

"So it has proved the necessity of its existence by the acts it has performed during those four years, for the plan of work we leave is large enough to occupy several sessions, viz: International Bibliography, Nomenclature, Code of Ethics, etc. So it will continue growing and the future will enlarge, I hope, the work that has already been done. And should it perish after this first period, we should have the consciousness of having performed good work by so sowing all over the world just and useful ideas in favor of human progress.

"In our twentieth century these international federations constitute a new organism, not only necessary to worldly dentistry, but to all departments of professional and scientific activity. When men thus meet in great peaceful sessions as universal exhibitions and congresses, wholly given up to the pleasure of exchanging their ideas, of communicating the result of their works and researches to each other, they must forget political and geographical limits and think only of drawing nearer to one another in those great international federations which are constituted in every branch of human activity and which now meet regularly at different points of the world.

"As new agents of progress and civilization, these great federations do not attack the essential part of nationality, for that remains under the safe keeping of political and diplomatic bodies, but their activities take place on the high plane of human science where territorial divisions have no action, where the end of strife can be but pacific, because the contests are only of the intellect, where the presiding goddess is like the splendid statue of Liberty in the harbor of New York, the torch of Truth in one hand, and in the other the olive branch, symbols of true human fraternity."

Representatives from nearly every civilized country in the world were in attendance at this meeting. Short addresses were made by Dr. C. C. Chittenden, President of the National Dental Association; Drs. H. A. Smith, E. Sauvez, of Paris; J. Y. Crawford, J. D. Patterson, H. B. Tileston, J. G. Reid, J. Rojo, of Mexico; V. Guerini, of Naples; F. Aguilar, of Madrid; Alfred Burne, of Sydney, N. S. W.; L. C. Bryan, of Switzerland; J. C. Grevers, of Holland; N. S. Jenkins, of Dresden, and R. B. Weiser, of Vienna.

In the afternoon at 3 o'clock the Federation divided into three commissions, education, hygiene and public dental service and international dental press, which met simultaneously in different parts of the hall.

At the session of the commission on international press, Dr. A. W. Harlan presided in place of Prof. E. Förberg, of Sweden, who could not attend this convention, because of important engagements. Dr. Harlan, editor in chief of the *Journal of Oral Surgery and Dental Medicine,* read a paper, in which he advocated an international review, published in four languages, which would unify and enlighten dentists of Europe and America. Acting on Dr. Harlan's suggestion, the commission appointed a committee, composed of Drs. Guilford, chairman; B. Platschick, of Paris, France, and Windhorst, of St. Louis, to present a plan for such a review.

The commission on hygiene and public service held an interesting session. Dr. N. S. Jenkins, of Dresden, Germany, presided. Dr. B. L. Thorpe, of St. Louis, welcomed the commission, and an interesting discussion followed the reading of a paper on the subject of "Public Dental Service." This paper was written by the late

Dr. J. Frank, of Vienna. Dr. Aguilar, of Madrid, the court dentist to the royal family, led in a vigorous discussion, advocating new measures to relieve the suffering of the poor.

The commission on education held a short session on the Music Hall stage. Dr. J. D. Patterson, of Kansas City, Mo., welcomed the commission, and Chairman Dr. T. W. Brophy, of Chicago, and some ten others responded. Dr. Brophy read his chairman's address.

At 4:30 p. m. the dentists of the various commissions adjourned and went out to the Fair, where they were received by Commissioner-General Gerald, of France, in the French pavilion.

On Saturday, the 27th, a general session was held at which much important work was done, as follows: Dr. A. W. Harlan, of New York, presented a resolution, which was unanimously adopted, providing that a letter be sent by the Federation to each of the civilized Powers of the world that had no government dentists, asking them to appoint a certain number to attend to the injured soldiers and sailors who needed such attention.

In the section of the Commission on Education the following papers were read and discussed: "A Resume of the Status of Dental Education in France," by Dr. Charles Godon; "The Necessity of Establishing Libraries in Dental Colleges," by Dr. W. E. Boardman, of Boston, Mass.; "A Brief Consideration of the Grading of Students in Dental Colleges," Dr. C. N. Johnson, of Chicago; "International Dental Education," Dr. H. L. Banzhaf, of Milwaukee; "The Development of Dental Education in the West," Dr. A. H. Thompson, of Topeka, Kan.; "Education," Dr. R. B. Weiser, of Vienna, Austria; "Method of Teaching Operative and Prosthetic Dentistry," Dr. M. Roy, of Paris, France; "Note on the Life of Fauchard," Dr. G. Viaux. These papers were followed by a discussion of the report of Dr. Weiser on "Public Dental Service in the Army."

In the Section of the Commission on Hygiene and Public Dental Service the following papers were read and discussed: "Emergency Dentistry and Complete Dentistry for the Poor," by Dr. Charles Godon; "Public Dental Service," by Dr. E. Förberg, of Stockholm, Sweden.

In the International Dental Press section Dr. B. L. Thorpe, of St. Louis, and Dr. J. Endelman, of Philadelphia, read papers.

It was decided during the general session of this date that the

Federation would establish a Dental Review and central bureau, through which all advances made by the profession would be made known to the public in four languages—English, German, French and Spanish. The following committee was appointed to look to the welfare of this plan: Drs. J. Endelman, of Philadelphia; B. Platschick of Paris, and Subirana, of Madrid.

During this session proposed rules and regulations were adopted and provision made for an Executive Council of fifty members. The countries represented are those of Europe and America. All first-class nations, except Russia, are to have five representatives, Russia to have four. All other nations will have one and two representatives.

(*To be continued.*)

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

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EDITORIAL.

THE MEETINGS AT ST. LOUIS.

That dental history was made very rapidly at St. Louis during the last days of August and the first days of September, 1904, no one who was present can doubt. We are not yet far enough away from the various events to get a perfectly true perspective of the significance of each meeting, and time alone can place an estimate upon the real value of the work accomplished. But that much material of service to humanity was given to the world at that time there can be no question.

The first association to convene was the International Dental Federation, with representatives from most of the leading nations of the world. This organization is really the link between congresses to keep up international interests and foster international progress from one meeting of a congress to another.

Its chief officers, in the persons of Drs. Godon and Sauvez, of Paris, France, and Dr. Aguilar, of Madrid, Spain, were present on this occasion and lent dignity and distinction to the event. A reception was tendered the Federation by the French Commissioner at the French building at the World's Fair, and proved a very delightful occasion.

The presidents of the various commissions of the Federation presented a program for the meeting which was really of very great interest, though in some instances the attendance at the several sessions of the commissions was not very large. This is invariably the case where there are so many counter attractions as those furnished by a world's fair, but the papers presented were listened to with great interest and were freely discussed.

A new commission in addition to those already in existence was organized, and the general work of the federation was broadened. We have great hope in the future of this organization so far as the development of the profession along international lines is concerned, and we feel that this meeting will do much to advance that progress.

The Fourth International Dental Congress was the largest dental congress ever held. The registration numbered something more than 1,200, while those who joined the Congress and were unable to be present increased the membership considerably over this amount. We have not the exact figures, but it is certain that the Fourth Congress showed a substantial gain over any of its predecessors.

But with this, as with the Federation, there were many of the section meetings which were poorly attended. In some instances excellent papers were read before audiences of half a dozen men, and in one case a paper which had taken its author months of research to prepare was read to a smaller number even than this.

This was not true of all sections, the attendance at one or two of them having been very satisfactory. But the experience at this meeting would seem to prove that one of two things is necessary to obtain a respectable gathering to listen to papers—either condense the sections to a fewer number embracing a wider range of subjects in each, or else hold meetings in some place with fewer counter attractions, so that members will have no diversions to tempt them from the sessions.

The program of essays at this Congress was representative of advanced thought, and there were many excellent papers presented. The transactions, therefore, should furnish much food for thought.

One very commendable feature of the Congress was the admirable manner in which the finances of the Congress were managed. It is stated on good authority that all of the legitimate expenses of the Congress will be met without touching the membership fee, leaving this amount for bringing out the published transactions. This is a record that the finance committee may well be proud of.

The transactions when published should make a notable contribution to the history of dentistry, and this meeting will doubtless prove another prominent mile-stone in the way of professional progress throughout the world.

The different dental fraternities held their meetings during the week and the most enthusiastic spirit pervaded the various reunions, but space forbids a detailed report.

The meetings of one organization must be mentioned, however, on account of the very great interest it possesses for dentistry in America. This is the National Association of Dental Examiners, which held sessions at intervals through the week. The two chief features of these meetings were the establishment of a standard of admission to dental colleges and a fixed minimum time of attendance at a dental school before graduation. The preliminary requisites for matriculation were placed at four years of high school work, or its equivalent, while the requirement for graduation was made not less than twenty-eight months in a dental college, the idea being that it made no difference to the Association whether these months were divided into three or four years.

These resolutions were not to take effect till 1905, thus giving some time for the proper adjustment of the question between this Association and the National Association of Dental Faculties. This latter body had met in St. Louis on July 18 and passed a resolution placing the time of attendance at a dental college at three years of thirty teaching weeks of six days each, exclusive of holidays. Their present standard of admission is two years of high school, so it may be seen that there is a discrepancy between the requirements of the two associations. It is hoped that before the new regulations become active there may be a calm and deliberative consideration of the entire question on the part of both organizations, to the end that an adjustment of the differences may be made and the best interests of the profession as a whole conserved.

THE EDITOR'S DESK.

THE MUSIC OF THE NEEDLES OF THE PINES.

I have heard the great musicians from Remenyi to the Pole,
I have heard the peerless Patti at her best;
I have reveled in Beethoven, had a taste of Mendelssohn,
With some melodies from Verdi and the rest.

I have sat in wrapt absorption while De Reszke trod the boards,
I have heard magnetic Calve trill her lines;
But the harmony which moves me quite beyond a human gift
Is the music of the needles of the pines.

When the wind with wondrous magic sweeps across the harp of green,
And the air is stirred to melody divine;
When the needles wave and sparkle in the sun glints from the sky,
I bend in silent worship to the pine.

From the whitened slopes of Norway to the balmy, sunny south;
From the hill sides and the vales of every clime,
This grizzled ancient monarch peals above the heads of men
An anthem weird and rhythmic and sublime.

One stury old enchanter standing guard beside the gate
For years has been the object of my love;
I have heard its variations from the roaring of a lion
To the soft and gentle cooing of a dove.

It has whispered to me legends of the days of long ago
When the wild-deer and the Red-man sought its shade,
When the forest echoed only to the music of the spheres,
And the wreck had not begun of saw and blade.

As I listen to its story sung in notes from out the wild,
I am wafted far beyond the world's confines,
And my heart is filled with longing that when on the other shore
I may waken to the music of the pines.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Care in Adjusting Bands:—Driving bands down too far and too tightly on roots is responsible for the exfoliation of many crowned roots. We should avoid all possible irritation in our operations.

MARK G. MCELHINNEY, Ottawa, Canada.

Malletts:—I may be prejudiced but I believe that the dentist who would use a mallet either to put in gold or fit a crown has missed his calling. He should have been a stone-cutter.

MARK G. MCELHINNEY, Ottawa, Canada.

Physical Contact:—We should restrict physical contact to the smallest possible limit. To lean on a patient is altogether unnecessary. To rest one's elbows on a lady patient is unpardonable vulgarity. MARK G. MCELHINNEY, Ottawa, Canada.

Setting Inlays:—To prevent moisture reaching the inlay after seating it in place, cover with the surplus cement and firmly press a piece of tin foil over the whole. This will adhere for hours and is of course absolutely impervious to moisture.

C. B. ROHLAND, Alton, Ill.

Avoid Unnecessary Pain While Operating:—The comfort and welfare of the patient comes first. It is better to perform an operation twice with minimum pain than once at too great a price of suffering. This is heresy but I was born a heretic.

MARK G. MCELHINNEY, Ottawa, Canada.

Models for Seamless Crowns:—I always cast two Mellott's metal models when making a seamless gold crown. I use one to strike up the cusp in the end of a block of wood but swage the crown on the one that has not been hammered. The hammering will sometimes enlarge the models and I have found the finished crown will be a trifle loose when fitted to the root. Homer Almon.

Extracting First Bicuspid Roots:—When it becomes necessary to extract a first bicuspid root much care should be taken, as frequently we find that the apical end of the lingual root is frail and crooked. A root of this kind can almost always be removed without fracturing by moving the forceps buccally, and not rotating, as is too frequently done.

Drying Root Canals and Cavities:—For drying root canals and cavities the chip blower is better than the electric syringe for hot air. Heating the tip over the alcohol lamp and working the bulb generates formaldehyde gas, which is a splendid germicide. Forcing this hot air into root canals and cavities will aid, by means of sterilization. This has been published before but will bear repeating.

Homer Almon.

A Good Dressing for Congested Pulps:

℞	Morph. Sulphas	gr. j.
	Spts. Artheris Nitrosi	ʒ vij.
	Ol. Cary. q. s.	℥ j.

Sig.—Seal a small pledget of cotton saturated with the solution in the cavity.

Dissolve the morphia in the nitre and add the oil.

W. H. Tweedle, Hopedale, Ill.

Gold Plating Outfit:—All that is needed for an outfit is a few test tubes, a glass beaker and a single cell battery. To make a 24-carat gold plate you first want gold chlorid, which can be obtained by dissolving a few grains of pure gold scraps in aqua regia (two parts concentrated hydrochloric acid to one part concentrated nitric acid), using just enough to dissolve the gold. The gold chlorid is now made alkaline by adding potassium cyanide which has been dissolved. Add to this solution about five times as much distilled water and your plating bath is ready. A mild electric current can be obtained from a single dry-cell battery. For wiring the battery I use a single strand from an electric light cord. Place the article to be plated on the negative wire and attach a piece of pure gold to the positive wire by means of a short piece of platinum wire as the copper must not come in contact with the solution. Place the gold in the solution as far from the article to be plated as possible and care should be taken that the wires do not touch. Allow the plating process to continue until a brown precipitate begins to form, after which the article should be removed and polished with a soft brush and whiting. By repeating this process as heavy a plate as is desired can be obtained. The bath should be pure and the article must be clean. C. J. HADLEY, Chicago.

A New and Original Method of Making Large Porcelain Restorations:—Prepare cavity as usual for porcelain, and in making matrix be sure to anneal well if platinum foil is used. Paint walls of matrix with a solution of shellac, leaving floor free, if an approximal cavity. Let dry and fill with foundation body, to about the contour desired, leaving room, of course, for the enamel bodies of the desired shades. Bake as usual without any of the heretofore precautions, such as the cutting of grooves, inserting pieces of very high fusing porcelain, etc. On removal from furnace you will find a crevice between matrix and porcelain. Now fill crevice with enamel bodies of the desired shades and finish as usual. The porcelain adheres only where the matrix is free from shellac. If the shellac is used correctly it makes it impossible for the porcelain to pull the matrix. It can be used with success in large restorations, in the anterior teeth by painting the labial half and cervical third. This helps to preserve the contour by the shrinking of the porcelain away from the matrix, instead of toward it. Then fill with enamel body the crevice and the labial portion, which has been cut away for shading. Finish as usual. The shellac burns out at a very low heat and has no effect on the porcelain whatever. To produce a clear solution, take a two-ounce bottle half full of powdered shellac, fill with alcohol and shake well. Let it stand until thoroughly clear on top, then pour off into small bottle for immediate use. The large bottle may be filled with alcohol and put aside for future use, in same manner.

G. S. HERSHEY, Michigan City, Ind.

MEMORANDA.

ANTIKAMNIA TABLET PIN AND ASH TRAY.

The Antikamnia Chemical Company, of St. Louis, are sending out a pin and ash tray to each dentist in the United States and Canada as a souvenir of the World's Fair. They are made in the Manufacturer's Building, and form a very tasteful memento of the fair.

THE JOURNAL OF ORAL SURGERY AND DENTAL MEDICINE.

On the first day of January, 1905, the initial number of the above journal will be issued from New York. It is to be edited by Dr. A. W. Harlan, former editor of THE DENTAL REVIEW, assisted by Dr. Louis C. Le Roy, as associate editor. The well-known experience and ability of these men bespeak for the new journal a cordial reception at the hands of the profession, and THE DENTAL REVIEW wishes them every success. The editorial office is at 1122 Broadway, New York.

WISCONSIN STATE DENTAL SOCIETY.

At the thirty-fourth annual meeting of the Wisconsin State Dental Society held at Manitowoc, July 19-21, 1904, the following officers were elected for the ensuing year: President, H. T. Sackett, Fond du Lac; first vice-president, E. C. Oviatt, Columbus; second vice-president, P. B. Wright, Milwaukee; secretary, W. H. Mueller, Madison; treasurer, Adolph Gropper, Milwaukee. The next meeting will be held at Oshkosh in July, 1905.

W. H. MUELLER, Secretary, Madison, Wis.

NEW JERSEY STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual meeting in the theoretical branches in the Assembly chamber of the State house at Trenton, N. J., on the 18th, 19th and 20th of October, 1904. Practical prosthetic work to be done in the office of Dr. A. Irwin, 425 Cooper street, Camden, N. J., on a date assigned by him. Practical operative work to be done in the office of Dr. C. S. Stockton, 7 Central avenue, on a date assigned by the secretary. All applications must be in the hands of the secretary by the 15th of October.

CHARLES A. MEEKER, D. D. S.
29 Fulton Street, Newark, N. J.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The regular annual meeting of the Illinois State Board of Dental Examiners, to examine applicants for license to practice dentistry in this state, will be held in Chicago, October 13, 14, 15, 1904. Under an opinion of the attorney general the following are eligible to take the examination before the board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to moving into the state, and anyone who failed to register in this state at the time the law went into effect, which was in 1881." Candidates must furnish their own patients, and come provided with the necessary instruments, rubber dam and gold to perform practical operations and such other work as is deemed advisable by the board. Those desiring to take the examination should matriculate with the secretary at least ten days before the date of meeting. The examination fee is $10.00. Any further information can be obtained by addressing the secretary.

J. G. REID, Sec'y, 1204 Trude Bldg., Chicago.

THE

DENTAL REVIEW.

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THE CANTILEVER BRIDGE: ITS PRINCIPLE; AN ANSWER TO SOME CRITICISMS THEREON*.

BY DR. GEORGE CUNNINGHAM, CAMBRIDGE, ENGLAND.

In August, 1896, I read a paper before the British Dental Association on "Some Experiments in Bridgework, with Illustrations from Practice, and an Introduction on Its Engineering Aspect."

As you can readily imagine, it led to very critical criticisms, more especially as to those bridges based on what I ventured to call the cantilever principle. To some pertinent criticisms I was obliged to reply that sufficient time had not yet elapsed for arriving at definite conclusions as to results, more especially as the work was confessedly of an experimental character.

A reasonable time having now elapsed, I thought it would be useful to take up the question with regard to this particular form of bridge and summarizing the criticisms then made against it to exhume the actual results experienced.

INTRODUCTION.

The following quotation from my communication in 1896 will explain to you my attitude as to bridge work in general and the cantilever principle in particular.

"What is known in modern dentistry as bridge work is undoubtedly a branch of applied mechanics, and thus it may be described as a kind of dental engineering. As such, a study of those scientific principles, more especially as to the theory of stresses and the strength and other properties of materials which underlie all sound construction, is essential to the full development of this valuable addition to the resources of the dentist in his efforts to restore the lost function of mastication, and to obliterate the defects of lost front teeth. * * * * * I can not do better than further paraphrase a passage from the preface of Stoney's authoritative work on the 'Theory of Stresses' by substituting the word 'dentist' for 'engineer': 'The usual resource of the merely practical man is precedent; but the true way of benefiting by the experience of others is not by blindly following their practice, but by avoiding their errors, as well as extending and improving what time and experience have proved successful. If one were asked what is the difference between a scientific dentist and one who is a mere craftsman, he would reply, that the one merely executes mechanically the designs of others, or copies something which has been done before without introducing any new application of scientific principles, while the other molds new matter into new forms suited for the special object to be attained. and though experience and practical knowledge are essential for this, he lets his experience be guided by theoretic knowledge, so as to arrange and proportion the various parts to the exact duty they are intended to fulfill.

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*Read before the American Dental Society of Europe.

" 'The well-educated dentist should combine the qualifications of the practical man and the physicist. and the more he blends these together, making each mold, and soften what the other would seem to dictate if allowed to act alone, the more will his works be successful and attain the exact object for which they are designed.'

"In a recent paper on the Practical Utility of Accurate Studies of the Physical Properties of the Teeth and Filling Materials, Dr. Black calls attention to our ignòrance of many of the physical properties of the materials we employ and the forces with which we have to deal. As he says, and with perfect justice:

" 'The whole matter has been left to clinical observation. Without in the least disparaging the value of clinical observation, this can not serve as a sufficient guide to us any more than it can continue to serve as a guide to the civil or mechanical engineer in the construction of bridges or engines. In these days the engineer must know how to apportion the strength of his material to the load it must bear. Just so we, as dentists, should become able to adjust the strength of our fillings to the stress that shall come upon them in mastication, and be able to teach this in some definite demonstrable way to students.'

"These remarks apply with even greater force to the successful practice of bridgework.

"For some time past I have been endeavoring to study this most interesting class of work from its engineering aspect, but must confess that in doing so have found the subject full of difficulties. I might easily have kept to the clinical aspect of the cases I propose to bring before you, but I desire rather to place before you some of these difficulties with a view of convincing you that a large field of research work, as yet unexplored, awaits the coming dentist, who must possess a greater knowledge of higher mathematics and applied mechanics than either you or I possess."

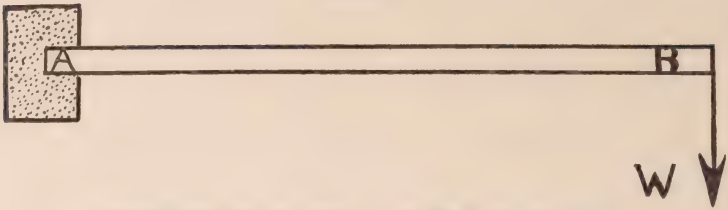
THE CANTILEVER BRIDGE: ITS PRINCIPLE.

In order to explain the scientific basis upon which I have been endeavoring to work, I beg to present you here some sketches of beams and their bending moments with the nature of the support and loading, and the strength and the resultant deflection, which I have worked out and endeavored to apply to our own work in the mouth. It is obvious that our word "bridge" is equivalent to the "beam" of the engineer. It will be noticed (see diagram) that in the diagram of beams four ways are shown, in which the same length of beam is supposed to be loaded. The total load is supposed to be the same in every case, and the length A to B is supposed to be the same. Then, we see that when the beam is fixed at both ends and the load spread over it it is twelve times as strong as when one end is fixed and the whole load hung from the other end, and six times as strong as when one end is fixed and the whole load spread over it. It has been ascertained by experiment that when loaded and supported in a different way the beam will carry more or less, according to the numbers in the column headed "Strength."

> *Perry.*—Applied Mechanics, a Treatise for the Use of Students Who Have Time to Work Experimental, Numerical and Graphical Exercises Illustrating the Subject.

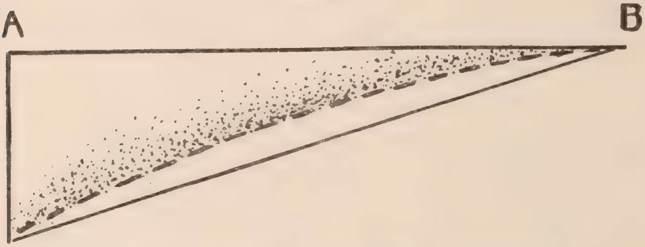
Moreover Anglin's book suggests from equations, with which I need not trouble you, some other graphic conditions of semi-beams or

Case I



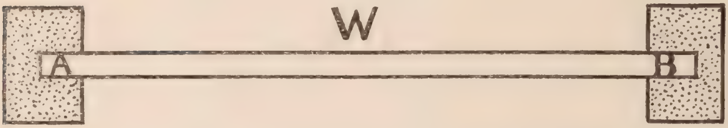
Beam fixed at one end. Load W at the free end.
Strength ¼. Deflection 16.

Case II



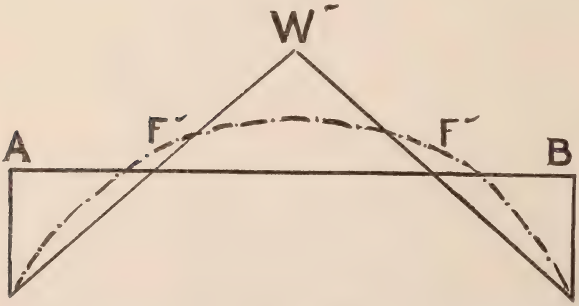
Load spread all over. Strength ½. Deflection 6.

Case III



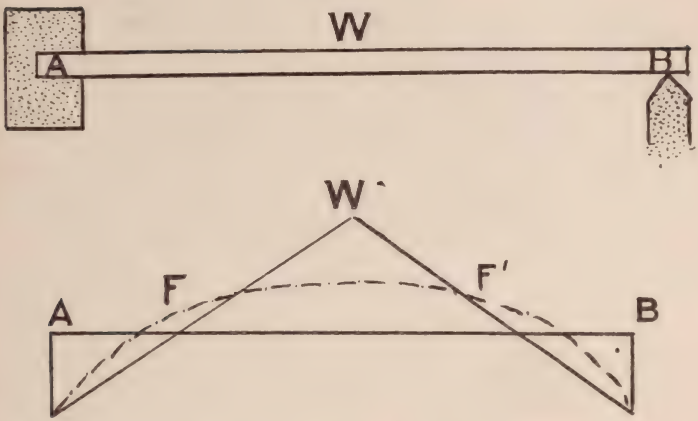
Beam fixed at both ends. Load W at middle.
Strength 2. Deflection .25.

Case IV



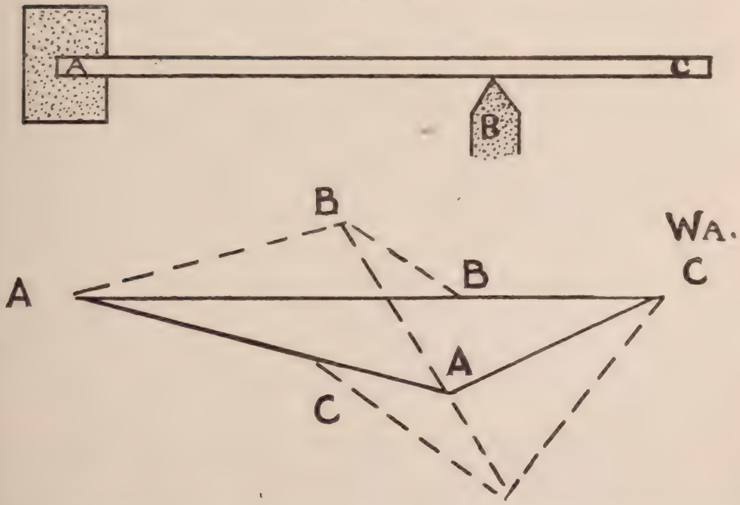
Load spread all over. Strength 3. Deflection .125

CASE V



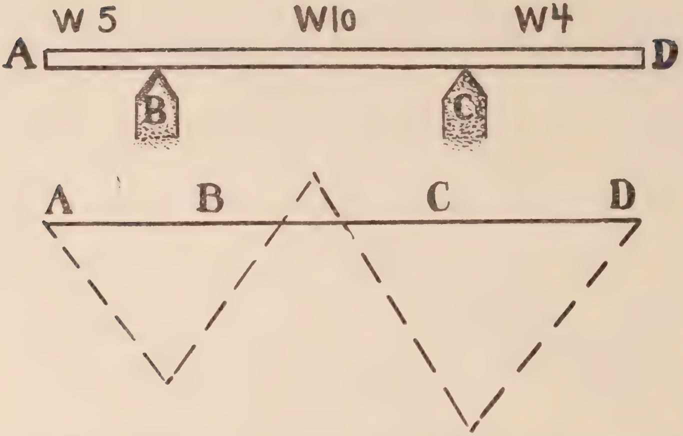
Beam fixed on one end and supported at the other. Load at the middle. Strength 1.5 ? Load all over. Strength 2.25.

CASE VI



Beam fixed at one end and supported at an intermediate point between its two ends. A, load at end C. Strength 1? B, load on span A B. Strength 1.5? C load all over. Strength 2.

Case VII



Beam supported at two points intermediate between the ends. A, W5 on A B W4 on C D. W10 on span B C. Strength 2? B, beam fixed at B and C. Strength 4?

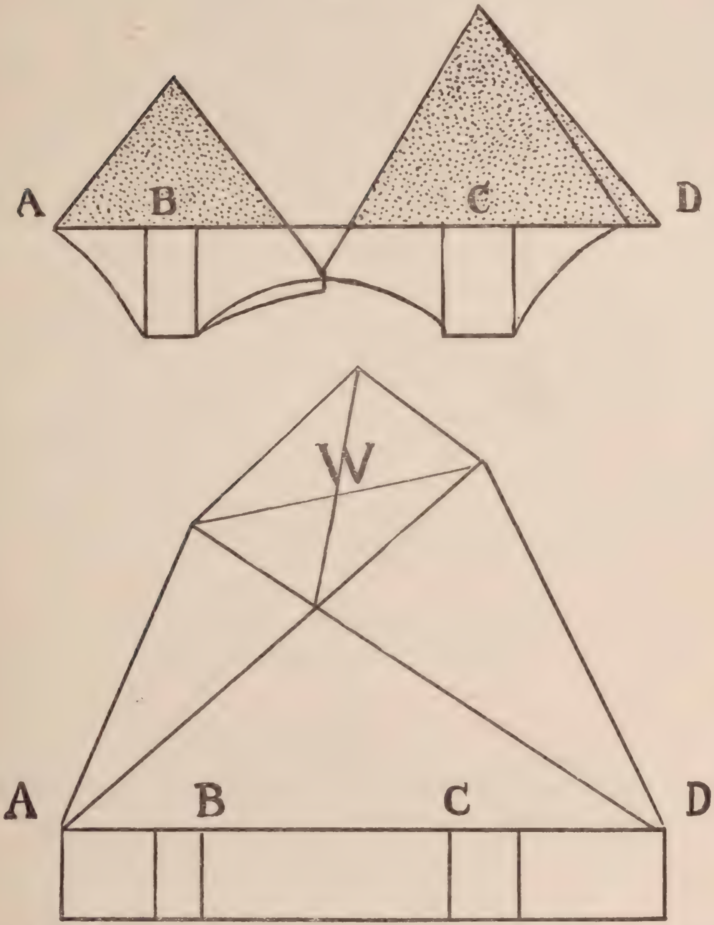
cantilevers. Cases VI and VII. The practical application I make in Case VIII.

There are some other factors in engineering which concern our work, such as:

"*Ultimate Strength—Working Load—Factor of Safety.*—The ultimate strength of a material is the direct stress which produces rupture. The working stress on a member of a structure is the maximum stress to which it is subjected in actual practice. The ratio of the ultimate strength to the working stress is termed the factor of safety of the material. In order to determine the proper value of this factor a number of considerations must be taken into account. A great deal depends on the character of the working load. Dental bridgework is subject to intermittent loads, or loads which are repeatedly or suddenly laid on or taken off again. In this respect resembling the crane.

"*Value of the Factor of Safety.*—The factor of safety varies, or ought to vary, with the nature of the working load. For a structure like a crane, wholly exposed to varying and jerky loads, it ought to be higher than in a structure like a bridge or a roof, where the working load is made up of a dead and a live load; and still higher than in

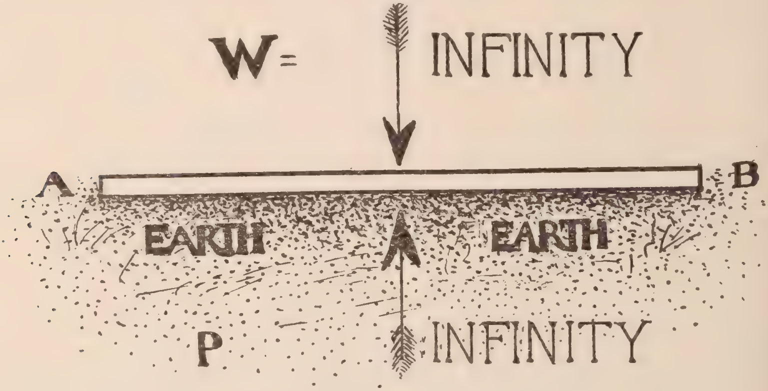
CASE VIII



Beam fixed at two points intermediate between the ends. A, diagramatic application to bicuspid and molar bridge with double extension cantilevers and load all over. Strength 4? B, ditto, with saddles in place of cantilevers, hence fixed and supported all over. Strength 16?

the case of girders which support the walls and floors of a warehouse. In fixing the factor of safety another consideration must be taken into account, and that is the nature of the material itself. Some materials are more reliable than others; for example, wrought iron and steel are more reliable than cast iron. Some engineers prefer to take the elastic limits of the material, instead of its ultimate strength, as the basis for fixing its factor of safety, and perhaps this is the more intelligent method. What do we know of either the elastic limit as compared with the ultimate strength of, say, coin gold as compared with ordinary plate (18 K.) gold.

"*Fatigue of Materials.*—When a load is suddenly applied to a girder it produces a momentary deflection much greater than that would be produced by the same load at rest. In the same way, if we take a bar of wrought iron, whose ultimate tensile strength is equal to twenty tons per square inch, and apply a much less tensile load suddenly and very often, so as to produce elastic vibrations in the bar, it will be found that this load, though much less than the statical breaking load of the bar, for example, be applied, it will not produce rupture at the first application, nor even when it has been applied a thousand times; but in the long run, if the number of applications be sufficiently numerous, and suddenly imposed, the bar will fail. This deterioration produced in the fibers of a bar by repeated applications of the load is known as the 'Fatigue of the Material.' This tendency to fracture is increased if the bar be subjected alternately to both compressive and tensile strains."



The ideal--no bending moment

Live Loads.—When a weight is suddenly applied to stretch a wire it produces greater effects than when slowly and quietly applied. We know the reason. A weight which, slowly applied, would produce an extension of one inch, will, when put on and let go, produce an extension of two inches. The wire now shortens to its original length, then extends two inches, and continues to get shorter and longer, the weight vibrating. As there is friction of some kind among the particles of the wire, and there is also external friction, the lengthenings and shortenings gradually lessen till, in a short time, the wire settles down into the same state as it would have been in if the load had been slowly applied. Now, if we suppose this wire, when stretched two inches, to be strained just beyond its elastic strength, it is evident that the suddenly-applied load does harm, whereas the same load slowly applied would do no harm. The extra strains due to loads being alive depend upon the mass which we set in motion in applying the load. In some railway bridges it has been found that the increased deflection is 14 per cent greater and it is usual to add 50 per cent to such live loads and treat them as dead.

Bending Moments on Semi-Beams.—In the case of a beam supported at both ends and loaded, the particles in the top of the beam are in a state of compression and are shortened, while those in the bottom are in tension and are lengthened, so that the center of curvature of the beam is *above* the beam. In the cantilever the reverse takes place. This distinction is recognized by treating the bending moments in the first case as positive; while in the cantilever they are negative.

Girders of the cantilever form are used for a variety of purposes, as in cranes and swing bridges, and of late are coming much into use in combination with ordinary girders for bridges of large span, as in the Forth bridge and similar structures.

It should be noticed that one great obstacle we have in working scientifically is our absolute ignorance from a truly scientific point of view of the ultimate strength of the materials we employ, and the same may also be said with regard to the working load and the fatigue of materials, etc., etc.

It is clear that the bridges we employ have to meet not only the load applied in the different ways already mentioned, but to deal with shearing force as well. It is also clear that the simple cantilever—that is, the beam fixed at one end—no matter how the load is disposed, can not have the same resistance to these various forces as compared with that of the bridge or beam fixed at both ends. It is also evident that if the bridge or beam is fixed at one end and supported at the other or it may be at intermediate points between its two ends, it very nearly approaches in the qualities of strength and deflection the beam fixed at both ends; and, therefore, if the cantilever suffices it may be even an *advantage* from the physiological nature of the foundations. By that I mean that the bridge fixed at both ends must give rise to many a stress on either fixed end, which would be absent in the bridge *fixed* at one end only. There is one quality which is not mentioned in the scientific discussion of structures, namely, the aesthetic standpoint. That, to us, is important; and although it has been alleged that my application of the cantilever bridge is defective from that very standpoint, the use and purpose I have made of the cantilever has been based on that very standpoint; for instance, given a bridge between the first bicuspid and the second molar instead of making the bridge fixed at both ends, thus involving a full or fenestrated crown for the first bicuspid, the anterior tooth, it may be made to act as a simple support by our utilizing it as the fixed point, and by projecting from the back of the mouth the cantilever forward; and further, given failure by decay at the point of support, it would still be practicable to cap the anterior tooth and make the cantilever into a doubly-ended supported bridge.

Curiously enough, my first use of the cantilever was the result of an accident. The patient had been wearing a bridge supported at both ends for some time, when it broke about the anterior middle third. The bridge reached from the first lower bicuspid to the second molar. This occurred when the patient was away on a vacation, and a considerable time elapsed before he returned to Cambridge. When he did so I was away, and my assistant satisfied himself by removing the anterior third of the bridge, which was lacerating the tongue. To my surprise when I saw the case the remaining part remained firm and strong after many weeks. I therefore took the opportunity of watching it for results as long as I dared, and argued, if weeks, why not months? On the first available patient I made a test of what seems to me a means of extending the use of bridge work without needlessly involving the anterior teeth, and thereby gaining aesthetic effect without any impairment of utility, and I have never had cause to regret the courage of my observations.

In 1896, I wrote that the case represented in Fig. 6 presented a problem of considerable difficulty, the space caused by the loss of the second bicuspid and left molar on the upper left side being almost wholly retained. The easiest way of treating such a case would have been by the insertion of the simple bridge cap fore and aft, but it would have entailed the disadvantage of a conspicuous gold crown upon the first bicuspid. An alternative method of treatment might have been the fenestration of the bicuspid cap and allowing the face of the natural teeth to show, but * * * * the fenestral cap has such drawbacks that it should be avoided whenever possible. It was deemed, therefore, better to make the appliance mainly depend for support upon the two molars, with an extension resting on the first bicuspid. The study of the appliance, as shown in Fig. 6, gives a clear idea of the construction of the bridge, showing as it does the double molar crown and the extension bar supplying the lost masticating surface. Had the space been smaller, the extension might have been formed on the purely cantilever principle. The long extension in this case, despite the solidity of the double molar support, would not have been justified from a mechanical point of view without utilizing a bicuspid as a strut. The durability of such an appliance will be watched with interest, since it is evident that such an appliance permits of a gliding movement at one end of a cantilever bridge.

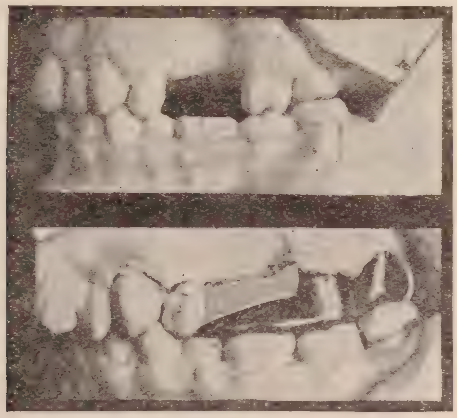


FIG. 6.

The bulk of the criticisms was based upon this case. You see my attitude as to the future. The future is now the past, and the case which I saw within the last three months is apparently as perfect as the day it was put in all but ten years ago.

AN ANSWER TO THE CRITICISMS.

The main objections advanced were:

Firstly. Aesthetic principle was almost entirely sacrificed to that of use.

Secondly. That large masses of food must necessarily collect to such an extent that the patient could not possibly dislodge it.

Thirdly. That I had gone too far and that the idea of this cantilever or extension could not be used in any large number of cases.

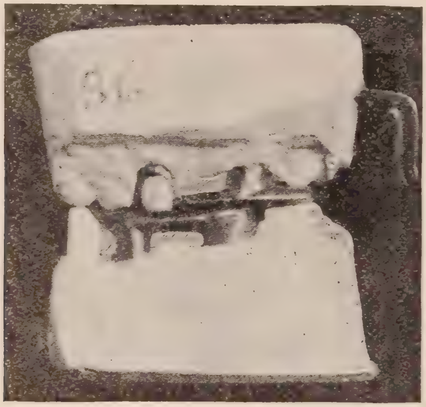


FIG. 7.

Fourthly. That failure would ensue from periostitis in the course of time.

Fifthly. That cutting down live teeth would not be submitted to by the patient.

Sixthly. That the usefulness and life of the cantilever bridge must be less than in a bridge supported at both ends.

All that is clear from the following quotations:

"Mr. Cunningham has spoken about the cantilever system. As far as I can make out, that means continuing the crown for the masticating surface over a space not occupied by teeth. In a few of the models he has shown it seemed that there was no other support for the continuation of the masticating surface. My experience teaches me—from the few cases I have seen—that ledges so left, that is to say, the continuation of the masticating surface, form a very favorable site for the collection of large masses of food, and to such an extent that at times the patient can not possibly dislodge it with ordinary efforts."

Answer.—After years of experience and observation food does not collect, unless the patient is neglectful.

"Within the last six weeks I have removed a crown bridge of this description, which the patient complained of. The bridge was a fixture in his mouth. Underneath it was the usual collection of food, and he assured me that it was a painful business to be continually using his toothbrush in his efforts to dislodge the food."

Answer.—I have no such experience.

"It appears to me that this raises a very relevant point. Are we, in our efforts to do all we can for our patients, to give them such an apparatus as Mr. Cunningham has been able to work out, and are we to adopt it in a large number of cases? I should be inclined in most cases, I think, to fall back on the old plate. I use the crown wherever possible, but I think that Mr. Cunningham has gone a little too far when he expresses the idea that these cantilevers, or extensions, could be used in a large number of cases where the plate was generally adopted."

Answer.—Experiments have shown that the mastication value of a plate as compared with a bridge is as 25 to 125.

"I should like to ask him if he finds, in the cantilever cases as he calls them—that is to say, where the terminal edge of the plate is not supported—the life or usefulness of that bridge is less than in a case which is supported definitely at each end?"

Answer.—Even after this lapse of time, over ten years, the only answer to that question is "no."

"I have seen perhaps a score of these bridges with their abutments resting on unprotected teeth, and the results, if not fatal, have been always injurious to such an extent that I would never insert one without both ends of the bridge being attached to tooth crowns. The result has been decay of the teeth, or else displacements by pressure of mastication, the bridge being pushed down and the natural teeth forced aside."

Answer.—I have had no such experience.

"I would like to put one question to elicit an expression of opinion from him (Mr. Cunningham) as to the percentage of failure in the direction, say, of periostitis in connection with the teeth supporting these bridges, and how far, in his experience, periostitis is the result of permanent attachment of bridgework?"

Answer.—The application of bridgework does not, in my experience, provoke periostitis in the teeth supporting bridges; but it can not prevent the natural advance of expulsive alveolitis nor the internal changes in the pulp leading to its degeneration, which is characteristic of many mouths over fifty years of age.

In searching my records I have only found two cases: In one, the patient, then 56 years of age, had an unsupported cantilever bridge fixed on the left upper molar three, from which the gums had receded very considerably. Some seven and one-half years later the tooth in front of the bridge was lost from necrosis. The bicuspid was then disked and a similar cantilever bridge made, which abutted on the unsupported end of the old bridge—thus by the two cantilevers simulating an ordinary double-ended bridge. This construction lasted three years, when the expulsive alveolitis, gradually affecting all his teeth, necessitated its removal.

In another case, a patient came recently complaining of neuralgic pain, which I diagnosed as proceeding from the left upper molar two which, when capped to carry a supported cantilever bridge seven years before, had two ordinary amalgam fillings. On removing the bridge trephining the crown and removing the degenerated pulp and filling, the tooth became quite firm again and the bridge was reapplied. No decay had occurred under the lug bearing on the bicuspid. The gum had receded considerably on the molar; the patient is 56, so I deemed it better to deepen the posterior cap and add a full cap on the bicuspid, thus transforming the bridge from the cantilever form to an ordinary double-ended bridge.

This is the only case in which I have had to alter a cantilever bridge.

"I have put crowns on living teeth, and I have inferred from what the patients said that they would rather be seventeen years without the crowns than have another done."

Answer.—One case, selected from many similar experiences, will suffice. Owing to the unnecessary extraction of the two first lower molars, a permanent loss of valuable masticating surface took place. Three years ago I inserted a cantilever bridge on the right side to replace the lost surface, but she refused to have the other side treated. Within two years she requested to have the other side treated in the same way.

"But I must say my experience of cases that come under my notice of other people's work has been that almost invariably, after a few years of wear, where these rests have taken place—except in very few mouths—there has been a tendency to decay, and in that decay the margin has always been distinctly discernible at the point of contact between the rest and the tooth—not under it, but at it, just as we find in the case of teeth which approximate each other too closely.* * * * * Mr. Cunningham must remember, I think, and take into consideration, in advocating this process, that the teeth of the present day are getting, if anything, less and less inclined to stand rough usage, and what is more, you will find a larger percentage of cases which have had a considerable amount of conservative treatment * * * * * but I doubt if, after some years of experience, even Mr. Cunningham will recommend the frequent application of bridgework in what you may reasonably consider the average class of mouth you meet with in general practice."

Answer.—In running through my records I have only found two cases where, after an interval of five to six years respectively, decay has taken place under the rest or supporting lug of a cantilever bridge. In both cases the patient was neglectful, and a couple of fillings saved the situation. In the opinion of many investigators our critic's condemnation of the increased and increasing degeneracy of the teeth of the present day is not warranted.

In any case, it is now some eight years since the criticism was made, and I can confidently say that I have more faith than ever in recommending the application of bridgework in the average mouth met with in general practice, including the much-criticised and much-condemned cantilever bridge.

L'Envoi.—So far we have but considered one, though the predominant factor, viz., the bending moment, only that at some places. If we were also to ascertain the modulus of the elasticity of the material, and the moment of inertia of the section, we could then find out the *curvature* of the beam. It is clear there is much work to be done, great opportunity for research. Meanwhile, even in our ignorance, we know results are to be obtained, and further that if

S = success or satisfaction may be formulated

$$S = \frac{\text{Fee}}{\text{BM X EM X IS}} = X$$

and after all X = G. C. M. or the personal factor in all such work.

A PLEA FOR THE MORE ARTISTIC CONSIDERATION OF DENTAL PROSTHESIS.*

BY W. MITCHELL, D. D. S., LONDON.

Mr. President, Ladies and Gentlemen:

At the risk of boring you I ask you to bear with me for a short time, while I again present a subject upon which on several previous occasions I have spoken to you, in regard to what I consider some of its not unimportant details.

It is a happy sign of the times that the Institute of Dental Pedagogics lately assembled at Buffalo, had this subject in a general way upon its Agenda, and knowing as I do the men who would take part in its discussion I feel sure that this branch of our profession will receive far greater consideration at the hands of dental instructors in the United States in the future that it has in the past. Our duty to the public as their dental advisers does not always end when we have put their natural organs in a comparative state of repair and comfort, and given our best advice as to how they may take care of their oral cavity, and promote the comfortable and healthy functions of the organs contained therein.

We are frequently called upon to replace natural dental organs lost through ignorance, neglect, or disease; this being the case, the question naturally arises, how, and by whom, can this best be done?

I am aware that for a great many years past the prosthetic phase of our profession "plate work" or "laboratory work" as it is usually called, has occupied a very subordinate position in the minds of many of our leading practitioners, this very naturally includes the instructors of this branch of our profession. Just why this should be the case, or that this branch should only be taught in a comparatively perfunctory manner, especially as regards more artistic productions by students, and incidentally by the profession in their practices, thereby creating a demand for more artistic productions on the part of both patients and manufacturers, it is difficult for me to conceive. I trust, however, that the instruction in America, during the extended dental course as now laid down by the teachers of that country, will result in that the artistic side and a copy of nature's handiwork will be more minutely considered, and presented to the students, is not only a theoretical, but also in a very thoroughly practical manner, and if the men who now occupy the chairs of prosthetic dentistry in the various institutions are not up to the appreciation and discussion of this subject in an artistic and æsthetic way before their classes they should be replaced and the services of competent men who would be able to present this important branch of our profession in a satisfactory manner, and do everything possible toward developing an æsthetic appreciation on the part of students which would be far reaching in its influence, when disseminated by their graduates in after years in their respective fields of labor.

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*Read before the American Dental Society of Europe.

I was very much gratified while on a recent visit to the United States, to note that one college had a sculptor in charge of the students, superintending their efforts while they were engaged in modeling enlarged replicas of the natural organs.

It was interesting to listen to the conversation taking place between the pupils and their instructor, in respect to angles, curves, and contours, these with their combinations were thoroughly discussed with an intelligent appreciation of their relative and combined values. A course such as this going along in conjunction with the practical application of the principles of dental prosthesis as laid down by the lecturer upon the purely mechanical side of "plate work," can not but develop the best possibilities in both the student and the finished appliance, if these combined preliminary stages have been thoroughly impressed upon the student during his early years of training.

With the advent of vulcanite as a base for artificial teeth a moral and artistic blight set in upon our profession, promoting as it did a horde of dental bunglers, who were assisted in turning out their cheap wares by the manufacturers who produced those atrocities known as "gum sections," the chief mechanical possibilities of these wares enabled many edentulous persons to obtain artificial teeth at a nominal cost and the fact that these productions could be turned out by persons with the limited amount of mechanical knowledge and an utter absence of artistic perception contributed in no small degree toward the degradation and unpopularizing of this branch of our work by many good men, who might otherwise have taken a deep personal interest in it, and who would have helped to place it in a much more satisfactory position.

Another fact which has contributed so much toward the neglect of this branch of our profession is the greater consideration given to the operating side of a student's career while at college, as compared with that taken in connection with his laboratory work. Go to the average college, and note the difference in the habits and methods of the students in the laboratory, as compared with their habits in the infirmary, note the dirt and lack of system in evidence, note the disorder of his work bench, and the careless and dirty manner in which he leaves his bench tools and appliances when leaving the laboratory; these conditions are to quite an extent responsible for the dirty condition and lack of systematic arrangement of laboratory appliances we find in connection with a good many otherwise reputable practices. This certainly is not as it should be, as much care and consideration is essential in the arrangement and care of the laboratory and its cleanliness as in that of the operating room; it is in the best interests of the mechanician who has to spend most of his time there as well as to the interest of his employer, in promoting his efficiency, to say nothing of the inspiring influence incidental to clean and comfortable surroundings, as well as promoting a condition of systematic order conducive to the best interests of all who may have occasion to spend any portion of their time therein. There is no doubt that a better class of work will be turned out under the influence of well equipped and orderly surroundings than under those which a great many of us are, alas! only too familiar with.

I am quite sure you will agree with me that none of us can afford to misrepresent ourselves in what we are called upon to do for our patients, this applies with equal force to the substitutes for lost organs with which we have to supply them as well as to the repairs we are called upon to make upon their natural teeth. This being the case, it is imperative that we start out as well equipped for one branch of our work as for the other. There are few of us who are satisfied with anything less than the latest and best in the way of appliances or materials which will in any way save time, promote our efficiency, and conduce to the comfort of our patients and incidentally add to our bank accounts; this being the case it is essential that we should dignify our calling as much as possible by becoming masters of it in all its attributes as far as our ability permits. I know the argument will be raised in connection with the possibility of it being divided up into specialties such as oral surgery, orthodontia, treatment, extracting, and dental prosthetics. I fully recognize the potency of this argument, but that should not prevent the student being well grounded in the fundamental principles of the phase of our subject immediately under consideration, and he should be thoroughly and persistently impressed with that fact, upon his entering a career which will call for all the acuteness of his capacity for observation and a most conscientious appreciation of the necessity for a careful attention to all details, no matter how insignificant they may appear in connection with any work he may be called upon to do.

The outcome of this will be a well ordered mind which insures well ordered surroundings, two things which go a long way toward promoting efficiency, a saving of time both to patients and operators and conducing to personal success.

You will probably ask "What has all this to do with the title of the paper?" I will endeavor to point out:

In the first place it is the duty of our educators to develop as far as possible the manifest or latent capacity of the student, and insist upon the careful application of the principles as laid down by them, inviting at the same time investigation and development of original ideas in connection with his work as it progresses, thereby promoting an intelligent and lively interest on the part of the student in connection with his college duties. Greater care and supervision should be exercised in connection with the care taken of tools and appliances in the laboratory, and neatness in methods and the use of appliances should go hand in hand with the development of the artistic appreciation of the student. When the student has learned the use and possibilities of his various bench tools, and the adaptability and advantages of the different materials at his disposal, a decided step should then be taken with a view of developing the creative faculty in him, then instead of seeing so many highly polished monstrosities, hideous in their unnatural and unlifelike arrangement, adorning college shelves, as "specimen plates," we should have more artistic productions, leading up to in after years a more satisfactory and dignified condition of affairs than now exists. It would be a very easy matter for dental students to copy the dentures of their classmates, introducing the individuality of the different dentures as possessed by their college chums. With the facilities now possessed in the way of enamels, paints and furnaces, the student would be only limited by his own capacity.

"Gum sections" should receive the same scant courtesy at the hands of instructors, as do springs for the retention of the completed case. I am quite sure the copying of one set of natural teeth by the student, the consideration of the arrangement and articulation, the contouring, festooning, and stippling of the gum, which could be reproduced in celluloid, shaded or granular vulcanite would be of more practical use to him, and a more impressive part of his education than would be the construction of a score of the abortions as evolved at present.

The possibilities of prosthetic dentistry are practically illimitable, and under fair conditions can be made a very attractive part of our daily work.

There are very few phases of operative dentistry which have not their pioneer in dental prosthesis; show me a good plate workman and I will show you a man who will make a good operator, and I care not how good an operator may be, unless he is a good man at the bench, he is not as good at the chair as he might be. It is a common thing to hear men of more or less position say "I haven't the time to bother with plate work, I rarely go inside of my work-room"—a cursory glance at their mechanical work confirms their statement. Just how a man can be too busy to look after the best interests of his patients in this respect is beyond my powers of comprehension, even though he be a good and busy operator.

He has no right to compel his patients to accept prosthetic work he has not personally supervised, especially in connection with the arrangement and coloring of the teeth, any more than he has to slight the operations he performs for them at the chair. I wish here to throw out a suggestion which may be of interest and if studied may be of assistance to you in developing the possibilities of your prosthetic work.

It is a well recognized fact that the human race possesses many characteristics in common with the lower orders of animal life; nowhere is this more markedly shown than in connection with the features and underlying structures. The features, as is well known, are controlled through the nervous system by the various mental influences to which they may be subjected. These reflex manifestations of mental action are one of the phases which we may consider under the general term of facial indication of character or expression; that the teeth play no small part in this pronounced physical manifestation there can be no doubt, and that they are inseparable characteristics of certain types and characters we are equally assured. The gramnivora, carnivora, and rodentia all have their counterpart in the human race, in some cases is this very pronounced, while in others a frequent occurrence of other types and species or a mixture of types may be found upon a careful study of the subject.

The question of type, temperament, complexion, profile, and contour, and their relative bearings should be thoroughly considered. Type is an essential part of the subject under consideration and one which I can not impress too thoroughly upon you all.

This being the case we have a key whereby we may unlock the solution of many problems we are called upon to consider in connection with cases of the perfectly edentulous who may present themselves to us for treatment. Of the different types mentioned, each has its characteristic dental arrangement, just as much so as have the different types and incidental characteristics we come across in the human race. Who of us but have seen and remembered cases of a distinct bull dog type of both jaws and teeth, and if we consider the physique of the person possessing such a dental armament, we will remember that the physique as a whole bears out the general characteristics of this description.

Then again, we have seen persons possessing a mouth and teeth very much on the principle both as to shape and arrangement, of a bull. Many of us undoubtedly can recollect having seen mouths the anterior, interior, and exterior appearance closely resembling that of the hare, sheep, or kangaroo, as to their anterior articulation; we have also seen mouths with all the characteristic appearance of the pike, and in other instances we find the possessors of those physical characteristics were possessed of mental attributes quite in harmony with the animal traditions so perfectly portrayed.

Here then is a means of assisting students and all those interested in producing dental harmony, the characteristic requirements of which up to now have been quite neglected, and at the risk of repetition would strongly urge that this phase of the subject be deeply considered both by those present and by those responsible for the results emanating from our dental colleges. On too many occasions we find more or less of a haphazard selection of teeth for individual cases, a very superficial consideration if any at all, of the requirements of the surroundings—i. e., the stature, figure, complexion and temperament of the patient, and even when these have been considered we find the teeth mounted exactly as they came from the furnace, the entire set being of the same color, as perfect in shape as the manufacturer can possibly make them, and arranged by the dentist, or what is more likely, by his workmen, as regular and symmetrical as it is possible to place them. The result is we have a splendid and striking advertisement of the artificiality of that which, if properly considered, should conceal to all but the connoisseur the fact of its being a replica of nature.

We all know the results of the efforts of such men as Hunter, Warrington, Evans, Allan, Beauman and Haskell, in developing the highest possibilities of this branch of our profession. This was made possible by means of their artistic appreciation of the possibilities of porcelain, and continuous gum work.

I would strongly urge upon you all and those who are responsible for the education of our future dentists to give this very important branch of our profession a more careful consideration than has heretofore been accorded it; consider it in all its important details, immediate and collateral, study nature, study comparative anatomy, and the lessons they teach in connection with the subject under consideration, and the result will be harmony and symmetry instead of distraught incongruity, and a neglected phase of our work will be lifted to the place it should occupy and our calling will develop artists, and we can then truthfully claim to be to the public the benefactors we now only in part are.

THE PHILOSOPHY OF THE ADHESION OF VULCANITE TO METALLIC BASES.*

BY WALTER M. BARTLETT, D. D. S., ST. LOUIS, MO.

At the beginning of 1840 artificial teeth were mounted almost entirely upon metallic bases by means of soldered backings, or post anchorage. A few years later Dr. Allen introduced continuous gum, which gave to the profession a class of work by which artificial teeth could be mounted upon a platinum base by first soldering the teeth to the base and then fusing around them a porcelain body. With this class of work the restoration of lost contour could be accomplished.

At a later date vulcanizable rubber was introduced into dentistry, giving to the profession a method of constructing a denture which marked the beginning of a downward trend in the line of dental prosthesis.

Dr. Allen originated a class of work which, when properly constructed, was all that could be desired in the way of art and utility, requiring the best efforts of the skilled mechanic and an artistically trained eye.

When Dr. Evans made use of vulcanite for the construction of an artificial denture he placed in the field a cheap competitor against the one advocated by Dr. Allen. Before entering upon the work proper to my subject I will touch lightly upon the history of vulcanite.

The exact date of the introduction of vulcanite for dental use is veiled in some doubt, but we know that some time between 1844 and 1855 it first began to be employed. In 1851, Nelson Goodyear's process for making vulcanite was published and turned the attention of manufacturers to the adaptation of this material, which was announced to be a substitute for horn, bone and ivory, susceptible to being colored, and having the plasticity of gutta percha or caoutchouc, and exempt from the action of heat, cold and acids.

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*Read before the Chicago Dental Society.

In 1855, Charles Goodyear Jr. obtained in England a patent for making a dental plate of hard rubber, although it has been claimed that the late Thomas W. Evans, of Paris, France, produced a vulcanite denture in 1845. A lengthy litigation resulted from the claims of the different parties to the priority of the use of vulcanite for dental purposes, which resulted invariably in favor of the Goodyear Company.

To accomplish a result with vulcanite did not require the skill, expenditure and judgment necessary to manipulate the other, and consequently the profession rushed madly to this cheap base, using it entirely, or in combination with metallic bases, for the the attachment of teeth.

This method of combining the two has been in use for upward of fifty years, and yet I hardly know of a theory which has been advanced stating why such a combination is possible.

Vulcanite is produced by incorporating a given amount of sulphur with caoutchouc, the proportions varying according to the uses for which the vulcanite is intended after induration. This given amount of sulphur incorporated with caoutchouc to produce the vulcanite used for dental bases no doubt varied in the formulas of different manufacturers. Assuming this to be the case, I endeavored by correspondence to ascertain the amount of sulphur incorporated with the caoutchouc from some of the different manufacturers of vulcanite, but in all cases they were loath to give the information, so in conducting my experiments I was forced to rely upon the formulas given by Dr. E. Wildman and upon my own investigation. During some of my leisure moments I have gone deeply into this subject, carrying out quite a line of experiments to determine the adhesive properties of various metals to vulcanite as utilized for dental purposes.

It was first necessary to supply myself with all those metals necessary for prosthetic work, both practical and technical. Then I had to determine upon some method of obtaining definite practical data in regard to the amount of pressure or weight necessary to bring about a separation of the vulcanite and metal employed. A perfect mold constructed of gun metal was procured, which contained four depressions measuring three-quarters of an inch in diameter by one-quarter of an inch in depth. In the center of the base of the mould a depression was made to receive the islet contained upon the disc.

The rubber utilized in these experiments was whalebone. According to a recent analysis made by Dr. Prinz this rubber contained 25 per cent sulphur.

The various metals were cut in discs and squares measuring three-quarters of an inch in diameter. With the exception of aluminum and its alloy, tin and its alloy, viz., Watt's metal, these discs were supplied with a soldered islet. The rubber was carefully packed into the mold, facing the polished surface of these various metal discs, and the so-packed mold was then placed in the vulcanizer and vulcanized at a temperature of 320° for one hour. The object of this experiment was to attach the weight to the combined rubber

Metals	Weight of Metal	Loss in Metal	Adhesion	Remarks
24 kt. Gold	22.7	None	None	Rubber polished, no change on metal
Coin Gold	20.6	"	"	Metal and rubber, polished surface
20 kt. Gold	20.8	"	35 lb.	Metal slightly tarnished, rubber polished
18 kt. Gold	24.7	None	140 lb.	Metal tarnished, rubber polished
Pure Silver	14.3	42%	None	Metal partly destroyed, rubber soft and rough surface
Coin Silver	14.1	5%	None	Metal heavily tarnished, rubber soft and rough surface
Platinum	26.5	None	None	Metal and rubber highly polished surface
Aluminum	39	None	None	Metal and rubber polished
Zeller's Aluminum	16	None	None	Metal and rubber polished
Magnalium	21.4	"	Slight	Metal polished, rubber slightly tarnished and polished
Dental Alloy	14.7	None	5 lb.	Metal slightly tarnished, rubber polished
Nickel	11.7	None	None	Metal and rubber tarnished
German Silver	11.7	"	7 lb.	Metal polished and tarnished, rubber polished and tarnished
Victoria Metal	12.7	None	10 lb.	Metal tarnished and polished, rubber tarnished and polished
Iridiumoid	10.6	None	None	Metal partially tarnished, rubber partially tarnished
Copper	9.9	33%	None	Metal partially destroyed, rubber soft, heavily tarnished
Brass	14.4	None	10 lb.	Metal polished, tarnished surface, rubber partially tarnished and polished
Goldoid	12.1	1.65%	None	Metal tarnished, surface flakes off, rubber tarnished
Weston's Metal	52.5	None	None	Metal tarnished, polished, rubber highly polished
Tin	63.7	None	None	Metal tarnished and polished, rubber polished

and metal plate by means of a spring scale, and thus find out the amount of pressure or weight necessary to cause a separation between the two bases to determine the amount of adhesion.

The rubber used in the molds weighed prior to vulcanization 183 grains, after vulcanization 179 grains, indicating a certain loss, which during the process of vulcanization, being practically a dry distillation, can only be accounted for in this loss of its specific gravity, being simply a liberation of sulphuretted hydrogen resulting from the action of the hydrogen atoms of the hydrocarbon upon the sulphur present in the vulcanite. Quite an important change in regard to the weight of certain metals before and after vulcanization occurred.

From this table two important factors can be deducted:

First. Loss of weight in certain metals.

Second. The amount of adhesion between certain metals and vulcanite.

Practically only two metals, viz., silver and copper, showed, according to the above table, a material loss. Pure silver lost 42 per cent, coin silver 5 per cent, and copper 33 per cent. Goldoid, an alloy of copper and nickel, lost 1.65 per cent. The loss of silver durthe process of vulcanization is a well-known fact. This phenomenon may be simply explained from a chemical point of view, by the fact that sulphur in the form of sulphuretted hydrogen possesses a great affinity for silver. As we have stated above, during vulcanization dental rubber liberates sulphuretted hydrogen in *statu nascendi,* which in turn attacks the silver metal base, thus rendering it unfit for practical purposes. This same chemical reaction, only in a slightly milder degree, occurs when rubber is vulcanized upon a copper base. The free sulphuretted hydrogen will destroy the copper and form sulphide of copper, which, analogous to the above-formed sulphide of silver, will prevent the rubber from becoming "vulcanized," leaving it in a peculiar soft consistency.

It is rather remarkable to observe that in coin silver, being an alloy of nine parts of silver and one part of copper, this loss amounted to only 5 per cent, while each individual metal lost the following per cent, viz.: Pure silver lost 42 per cent and pure copper lost 33 per cent. Dental alloy, consisting of approximately one-third of platinum and two-thirds of silver, and much used as a metallic base for dentures in England and the Continental Europe, showed *no* loss.

The significance of the loss of copper is of less importance to the dental practitioner, as this metal is not utilized for artificial substitutes in connection with vulcanites. However, it is of importance to the teacher of dental prosthesis, as the copper is quite frequently employed in the technic teaching in dental colleges.

Another remarkable fact developed in this connection in regard to the loss of copper and silver under the above treatment. While copper and silver lost quite a large per cent when employed separately, that same loss was greatly modified when alloyed together, as in the form of coin silver.

A second and, from a practical standpoint, more important factor can be further deducted from our table. It is the relative amount of adhesion formed between the vulcanite and the metal bases. By looking over our table we find the following data recorded:

18 K. gold plate—140-lb. weight necessary to break adhesion.
German silver—7-lb. weight necessary to bread adhesion.
Victoria metal—10-lb. weight necessary to break adhesion.
Brass—10-lb. weight necessary to break adhesion.
Dental alloy—5-lb. weight necessary to break adhesion.

The above are alloys possessing approximately the following composition:

		Per Cent.
18 K. gold plate	Pure gold	75
	Silver	15
	Copper	10
German silver	Copper	58
	Zinc	30
	Nickel	12
Victoria metal	Copper	50
	Zinc	30
	Nickel	20
Dental alloy	Platinum	33 1-3
	Silver	66 2-3
Brass	Copper	
	Zinc	

If we look over this table very carefully we are forced to conclude that a certain amount of silver, or a certain amount of copper, or an alloy of both in the approximate proportions of two parts of silver to one of copper, must be added to those metal bases which form no union with vulcanite, viz., gold, platinum, nickel, etc., if we wish to bring about an adhesion between the metal base and the rubber. If we keep in mind that neither silver nor copper will unite with rubber, nay, will be partly destroyed in itself and prevent even the rubber from becoming thoroughly hardened during vulcanization, it seems, *a priori,* paradoxical to attribute to these metals a favorable influence upon the union of the two substances. Considering, however, a metal base alloyed with a silver-copper to the extent of about 25 per cent, in its union with vulcanite from a chemical standpoint, we may become convinced of the soundness of the following theory which I offer in explanation of this remarkable phenomenon:

During the process of vulcanization of rubber upon metallic bases, other than silver and copper, but alloyed with these two metals in certain proportions, the liberated sulphuretted hydrogen in its nascent state acts upon this silver and copper alloy, forming respectively silver and copper sulphides. This chemical removal of the alloy from the metal base will leave the surface of the base in a more or less pitted condition and this fresh rough surface offers a suitable place for the ready adhesion of the vulcanite to the metal. Whether the sulphides of silver or copper in their *statu nascendi* are instrumental in bringing about a closer union, is, in my mind, doubtful. If this were the case, vulcanization upon pure silver and pure copper would not be failures.

From the above experiments we find that there is sufficient adhesion of vulcanite to 20 and 18K gold for all practical use were it not for the fact that there is in time a change occurring in the vulcanite which, as it contracts upon itself, becomes detached from the metal base, so to obtain the best results it is necessary to aid adhesion of vulcanite to the metal base by roughening the contact of the base, attaching soldered pins or loops so they can be finally imbedded in the indurated rubber. Great care should be taken in placing the wire finish both labially and lingually to form an underhold for the lodgment of the vulcanite.

In conclusion I wish to extend my thanks to the firms of Arnold Biber and Hans Schmidt, of Germany, for their kindness in so generously sending me materials which I could not well procure in this country and which were indispensable in my line of experiments.

A FEW POINTS ON PROSTHESIS.*

BY A. E. MATTESON, D. D. S., CHICAGO, ILL.

When the Chairman of your Program Committee invited me to furnish a short paper on Prosthetic Dentistry, he was asked what he meant by Prosthetic Dentistry. He replied, "Oh, you know, artificial teeth on plates, and such things, produced outside of the mouth."

But I *didn't* know and consulted Webster and learned that prosthesis was "The addition to the human body of some artificial part to replace one that was wanting, as a leg or an eye."

Prosthetic Dentristry would therefore mean the replacement of something that was wanting in the dental organs, teeth or a tooth, and to go still further, even a part of a tooth.

Surely this would afford a field broad enough to roam without getting "out of bounds."

Knowing that such a liberal construction was not contemplated by your Committee, and wishing further light, I cautiously approached our friend, Dr. C. N. Johnson, well knowing his kindness and willingness to help the weak and encourage the faltering, and propounded to him the query, "What is Prosthetic Dentistry?" He looked at me an instant and replied: "Oh, give me something easy." After explaining to him that it wasn't a frivolous conundrum, and my reasons for wishing to obtain this information—the lines I wished to follow in this paper, etc., he most cordially informed me that I was "all right." Consequently, if I stray "out of bounds," you must look to him as my sponsor.

In the replacement of the organs of mastication, there are two fundamental principles that we strive to attain, *utility* and a *harmonious effect with their environment.*

This paper will deal more particularly with the first of these, as I take such to be the intention of your Committee.

To properly construct a full denture, that will comply with all the requirements, demands an accurate impression of the tissues, upon which the appliance will rest. This can only be obtained in plaster and from this a duplicate of those tissues is constructed of the same material.

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*Read before the Chicago Dental Society, May, 1904.

For ease in handling the subject I will take, for the present, a full upper denture as under consideration.

Having the duplicate or model, it is necessary to obtain a correct articulation; i. e., a model of the lower antagonizing teeth, brought into the relative position which the two jaws should bear one to the other, when the artificial denture is completed.

This is a difficult matter to attain, as the patient is, to a certain extent, responsible for determining this point and we are not infrequently led astray from their inability to conform to our request to close the jaws naturally. Our patients, almost invariably, in biting into a soft material, will thrust the lower jaw forward. To correct this tendency it has been my practice for a number of years, when constructing a vulcanite plate, to preserve the plaster impression, so far as possible, and use it to obtain the articulation the same as if it was the "trial plate." Fig. 1.

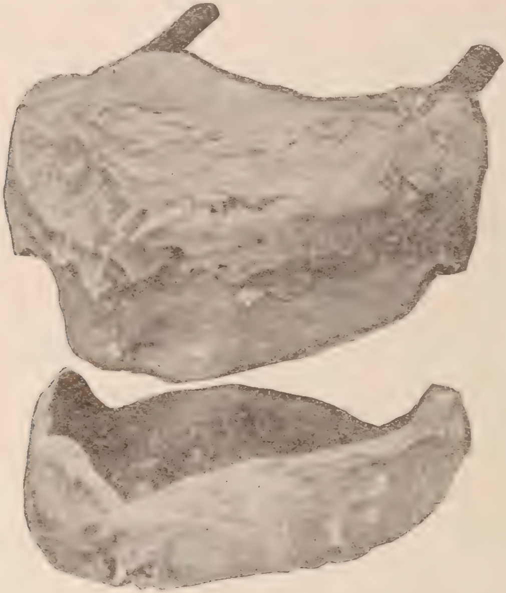

FIG. 1.

This is accomplished by removing the tray from the impression, after filling, then cut away the labial wall of the impression, enough to allow the separation of the impression from the model without fracturing either. This being accomplished, the impression is trimmed and shaped so as to leave a flat surface for the antagonizing teeth.

After varnishing it is placed in the mouth, the patient directed to throw the head back to the extreme limit and close the jaws. With the head in this position it is difficult to thrust the jaw forward.

Now with a pointed instrument scribe on the impression the outlines of the lower teeth (Fig. 2), remove and cover this occluding surface with warm wax a quarter of an inch thick and again insert in the mouth. With the head in the same position, instruct the patient to bite until the impression is reached. It is then placed in the articulator, filling the impression of the lower teeth at the same time. Upon removing the wax, the outlines of the lower teeth should correspond to the outlines scribed on the impression, and if the lower jaw has been deflected by biting into the wax it can be corrected in the articulator.

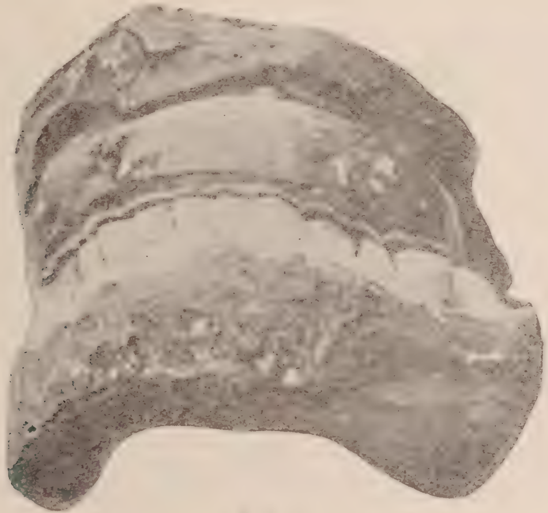

FIG. 2.

It should be borne in mind when taking the impression that a sufficient thickness of plaster is to be preserved between the tray and ridge to give the length of the bite and which, after trimming, will also furnish a flat occlusal surface.

It was previously said that one of the important requisites was an accurate impression. By this it must not be understood that a denture made in conformity with such a one would without some alteration produce the most satisfactory results. Many times an absolute failure would follow, as in cases where the soft tissues are of varying thickness. The usual manner of correcting this condition is either by scraping the impression in the region where the corresponding tissues are thin, or thickening the reverse positions, on the model, with tin or lead foil. If this is not done we have a rocking plate, inflammation of the tissues and ultimately a fractured plate from unequal pressure. The remedy by either method is to a great extent a matter of guesswork.

A method which eliminates this element of uncertainty was presented several years ago by Dr. J. D. Patterson, of Kansas City, Mo., and I will say that in every instance where this method has been adopted by your essayist, it has been followed by the most satisfactory results.

This method is as follows: Over a model from an accurate impression form a base plate of gutta percha, into which has been incorporated a small per cent of beeswax, and upon this arrange the teeth, using the same material for attaching to the base plate. In other words, make a model of gutta percha, which when completed, will be duplicated in rubber.

A gutta percha plate of this description may be worn for hours, or even days, and should be worn until adapted to the tissues upon which it rests. Immediately upon removing from the mouth, invest in the flask as you would a metal plate—*not* using the original model.

If a metal plate is to be produced, make the model for the metal die from a *new* impression taken from the gutta percha plate.

For a metal plate, i. e., continuous gum or gold, either for full or partial plates, there is a method of soldering a fine platinum or gold wire, No. 24 to 27, around the margins of the plate, about three-sixteenth of an inch from the edges, on the palatal surface.

A very interesting paper on this method, may be found in the *Dental Cosmos*, for October, 1903. I will, however, venture to present to you some modifications, which are not mentioned in that article, believing them worthy of your attention.

It is well known that a swaged plate can not be made to conform to the model as accurately as one that is made of a plastic material; the dies being made of zinc or babbitt metal, yield more or less to the pressure required.

With a partial plate, when retained by atmospheric pressure, whether the plate extends to the teeth or not, there is more or less leakage in the region of the remaining teeth; this leakage is reduced to the minimum by carrying this fine wire—before mentioned—around such teeth, one-eighth to one-sixteenth of an inch from the edge of the plate, and if extended entirely around the plate, we have atmospheric pressure in the area circumscribed by this wire and leakage prevented by its indentation in the mucous membrane. Fig. 3.

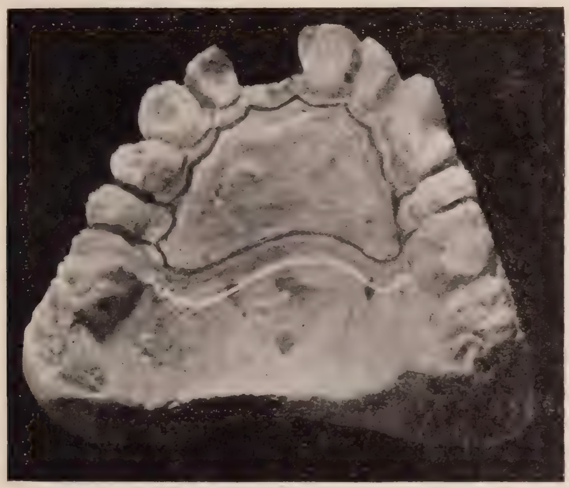

FIG. 3.

As there was no reference in the article alluded to regarding the difficulty of soldering the fine gold wire to the plate—owing to the danger of fusing—I will offer a few suggestions. For gold plates, I use 24-carat gold wire, No. 24 to 27. For continuous gum, platinum wire No. 26 to 29. I will say, however, that the size of the wire would depend upon the thickness of the mucous membrane.

For a full set I drill holes, slightly larger than the wire, through the plate, back of the maxillary tuberosity and three-sixteenths of an inch from the edge of the plate, insert the ends of the wire through these holes, the wire resting on and across the palatal surface of the plate; then press the wire to the position you wish it to occupy, drawing it taut, then pinching the ends to the plate to hold it in position. This should be in contact with the plate, otherwise there would be danger of melting the fine wire. Apply with a fine brush borax, ground to the consistency of cream, and unite with 20-carat solder.

Again, drill holes in the same places and also in the region of the fraenum, proceed as before, carrying the wire over the buccal and labial regions, with this precaution that the wire should not be placed in a position that will interfere with any prominences, when inserting or removing the plate.

In small continuous gum, or gold plates, covering but a limited area, this method is very efficient either without or in connection with looped wire clasps, or "crib clasps," similar to that introduced by Dr. Jackson in his system of treating dental irregularities.

Regarding clasps such as are used generally—a partial band or strap, approximately fitting the teeth—I will say that they have been discarded for what I consider a more practical method.

Where clasps are indicated, loops are used of iridio-platinum or platinum gold wire No. 19, the first for partial continuous gum, and the last for gold or rubber.

These loops can be readily adapted to the teeth in any desired position, are flexible in passing a considerable prominence, and they are of sufficient rigidity to withstand all the stress to which a natural tooth should be subjected.

The replacement of a lost lateral incisor—where all of the adjacent teeth are in such excellent condition that it would be an unwarranted procedure to cut off and crown, and to this attach an artificial lateral; or the replacement with a plate of any description has long taxed the ingenuity of the profession.

The history and management of such a case may be of interest.

The youth for whom the operation was performed was the son of an intimate friend; soon after his twelfth or thirteenth year his parents moved out of the neighborhood, his mother going to Europe and he spending the greater portion of his time with relatives out of the city. Soon after his mother's return, while making a call, I noted that he had lost one of his lateral incisors. I asked how he had lost it. He replied that he had never had a permanent tooth in that place, and his mother corroborated his assertion. I informed them that I had a distinct recollection of filling both laterals soon after their eruption. Both of these teeth were malformed and all his teeth tardy in erupting. An examination of my record con-

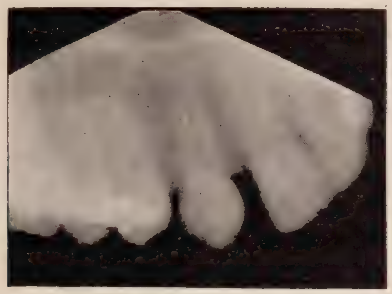

FIG. 4.

firmed this, but did not fully convince the mother, and a skiagraph was obtained, this failing to show an unerupted tooth. Fig. 4.

You will note that the cuspid occupies the space nearly equidistant between the central and the bicuspid. There was a slight overlapping of the centrals. This was corrected and these teeth banded and the cuspid forced into contact with the bicuspid. A

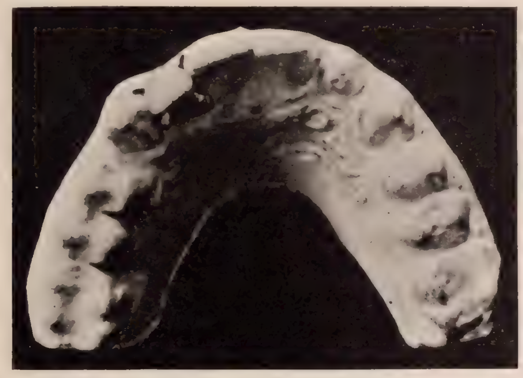

FIG. 5.

platinum disk was formed to fit the gum between the central and cuspid, and a platinum post was fastened to the pins of a porcelain facing and extended down to the disk. Four loops of No. 19 platino-irridium wire were then made to follow the gingival curvature of the distal surface of the central, and mesial surface of the cuspid, terminating at the proximo-labial and proximo-lingual angles of the teeth, and lying close to or slightly under the free margin of the gum. The disk, post, facing and loops were then fastened together with 25 per cent platinum solder, and the contour rounded out with porcelain. Opposite each eyelet formed by the end of the loops a small hole was drilled in the tooth for the reception of a screw. This screw was made from wire No. 19. The appliance was fastened in place by inserting four screws into the drill holes and held firmly in position by this means. Fig. 5.

A case I will present to your notice, where the root of a right central incisor had been crowned in 1893. The root had been broken off, leaving the apical third, which was removed with difficulty; all the other teeth were in such excellent condition that I did not feel warranted in any mutilation. I therefore decided to make a small gold plate and wiring near the periphery, using a Bonwill crown, cemented to a post, which was soldered to the plate.

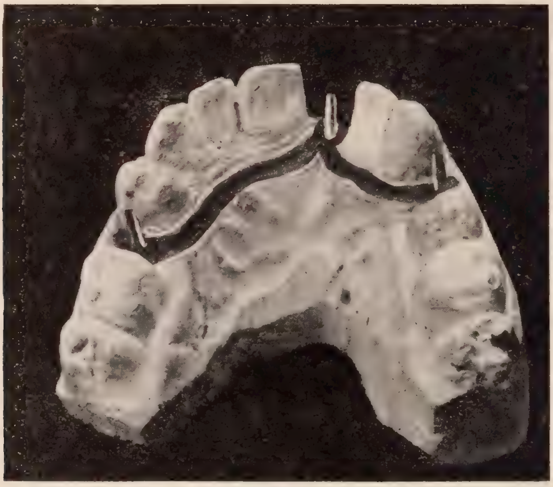

FIG. 6.

This plan was followed, but the appliance did not prove satisfactory either to the patient or myself. This may have been owing to a great extent to the condition of the tissues, which were very thick and yielding.

Accordingly, I removed the crown and attached Jackson "crib clasps" to a bicuspid on each side, and again cemented the crown to the plate. These held the plate firmly in place, the patient being unable to dislodge it without aid from his fingers.

A case somewhat similar, except there being a biscuspid on each side, with frail walls and having large amalgam fillings, was managed differently.

The biscuspids were cut off and prepared for crowning, using platinum disks and iridio-platinum posts. Two thicknesses of iridio-platinum plate No. 26, one-sixth of an inch wide, were swaged and united with platinum solder. This strap extended from the posts of the biscuspid crowns—to which they were soldered—and distant one-eighth of an inch from the intervening teeth, and was also soldered to a disk (saddle) to support the artificial central. Fig. 6.

All solder used was 25 per cent platinum, and the case was completed with porcelain. The teeth used for the central were a Bonwill crown; for the biscuspids S. S. W. "Perforated teeth."

I wish to give due credit for this procedure to Dr. Charles Southwell, of Milwaukee, Wis., and I wish also to say that in the limited number of cases where it has been employed, it has without an exception proved entirely satisfactory to both the patient and myself.

THE ACQUISITION OF CULTURE BY THE PROFESSIONAL GENTLEMAN.*

BY CHARLES E. JONES, B. S., D. D. S., CHICAGO, ILL.

Mr. President and Members of the Odontographic Society: It is my purpose tonight to view and depict the personality of the professional gentleman, who has developed the finer instincts of his nature, by yielding to the influence of culture and refinement: this I do, partially, from a lay and partially from a professional aspect. The latter sentiment I find that I can not exclude from either my viewpoint or depiction. The individual outside the professional ranks would have to be intimately acquainted with the profession and competent to expose the public thought and sentiment concerning it.

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*Read before the Odontographic Society of Chicago.

It is the personnel of a profession that determines its relative position in social, political and professional life. It is the extent of scientific attainment that adjusts a constituent in the profession of his choice. It is the extent of his culture, by culture, we mean foundation, attainments other than professional, that locates him in society. He must have imbibed sufficient democracy to regulate and balance his endurance in society, before he can become a permanent fixture in that society. The professional side must be strengthened and fortified by scientific facts and groundings. The social position must be augmented by broad culture, clean and pure thoughts and sentiments, neither too delicate nor too blunt but sufficiently keen; made so by a volume of diplomacy. With these two attributes, a man need not worry over the relative position politics will give him. He already possesses the two requisites of modern society, things for which morbid politics crave.

I am referring tonight, wholly, to the practitioner. The practitioner can not expect to impose upon the society that compensates him for his intellect, to build his cultured aspect. Society demands that that particular gentleman be broad and of sufficient capacity, other than of professional prominence.

How often are you gentlemen called upon to converse and even visit a company of educated and cultured people, where professional standing is recognized, but where the special application of scientific attainments receives no reception? Picture yourself describing minutely the pathology and etiology of a hypermaemic pulp to some lady of recent acquaintance, at the next social function that you may have the pleasure of attending. Think of the horror and chagrin of that particular lady, as you graphically carry her through the various stages of inflammation and after the narrative is finished, watch the sense of pity that traverses her features; and if you could read the mind of the lady, her mortification, I know, would be contagious.

Modern society demands that you know professional secrets and that you retain them. Society has no secrets, and things of complex nature find no quarter within its domain. It is, therefore, advisable that no exposition of professional erudition be made except when demanded and compensated for.

Culture receives no direct remuneration but its worth is priceless and society unconsciously pays handsomely for its distribution.

How are we, as a profession, to acquire this coveted standing? By aiding its present progress and accelerating the activity of its purpose; by cultering the uncouth; by educating our students upon a broader basis. As you know, education exhumes for the individual. a consideration of his environment; it also teaches not only the application of specialized thought but promotes a thinker and student, upon a firm and intelligent foundation—culture and education.

It is not necessary for the professional gentleman to have read Cæsar and Virgil. It is no necessary that he traverse through the dark and dreary paths of integral calculus. These act, only, as incentives for that accurateness and vastness by which his after life may be formed. These methods of education are adopted because they are found to have a direct application to many of the vocations of life, and because it has been found that these fundamental sciences, such as mathematics and the languages, ground men most thoroughly in habits of accurate thinking.

There is no more personal merit attached to the possession of naturally superior intellectual powers than in the succession to a large estate. It is the use which is made of the one as of the other which constitutes the only just claim to respect. A great fund of knowledge may be accumulated without any purpose; and though a source of pleasure to the possessor, it may be of little use to anyone else. It is not mere literary attainments that make a man. For it is possible to have read many books and waded through many sciences, and yet to possess no sound intellectual discipline; whilst others, without any regular scholastic culture, may, by the diligent exercise of their judgment and observation, acquire eminent mental vigor. The adaptive and receptive status of various individuals to adjust themselves in the society of their selection is governed much by the innate or inherited qualities that modern society leaves as a heritage to its posterity. and not altogether by a fixed form of education.

An individual may acquire the merits of culture without having passed directly through the course outlined by our educators. He may come into possession of higher attainments than his educated brother, by following his own individual aspiration and allowing his ever developing personality to be governed and directed by current forms, rather than depending upon the conduct laid down by his ancient progenitors. as the educated man may do, and who possesses the right to usurp the power of ancient traditions and heroes because of his acquaintance with them.

A professional gentleman should acquaint himself with some form of antiquity; by so doing he will familiarize himself with much that has become traditional history and therby be enabled to compare the progress of the present with the past. He should become familiar with civics, national and international affairs pertaining to importance of world powers, and above all, possess a realization of the psychological entity of the human species.

We have but to rely upon the resources of our own profession to mark the progress of culture and its reception into professional life. Think of what the esthetic has done in the form of porcelain art. What does the development of this useful as well as beautiful acquisition mark in the progress of our own profession? It commemorates an upward movement, a higher plane of intelligence and therefore a higher position in cultured attainments by the profession.

I can not take the time to enumerate the various aspects our professional ideal should assume. But let this suffice that he should broaden and better his own life, circumscribe it where needed and make its power and vastness limitless, where most fruitful.

No artist can paint with vividness or harmony of color without a conception of the true and beautiful of divinity and a knowledge of culture which includes all that is uplifting and ennobling.

The man who fashions the insensate clay produced by human ingenuity is not an artist; he is only an artisan, a moulder of inanimate existence and not a sculptor of human destiny. True, he fills the rut which his proclivities have sought. But such as these do not make the cultured gentleman, which ours as well as other professions demand.

You gentlemen have the marked advantage of belonging to societies whose purpose is wholly to uplift its members, also the advantage of existing in an environment whose splendid worth you have but to imbibe for your own aggrandizement. Your connection with a profession places you in touch with advantages that the educated man loses, when once he abstains from society of equal attainments.

Men are all mosaics of other men, and Metemsychosis is a fact. Through all the ranges of literature and history this law presides, that "we become like those whom we habitually admire," and should this society possess characters of pure culture and sentiments, it is but natural that the corporate body would seek equal magnitude.

Many of the members of our profession have received the impetus of truer personalities by being intimately connected with our profession. It contains within itself enough culture to discipline a nation, if an intelligent application of its worth could be made.

I wish to place before your criticism, before I close, two characters, to prove the good influence of cultured environments upon the members of any society. Our character possesses natural or inherited advantages, the other an acquired footing—education, imbibed by application to traditional outline.

They both enter upon school life, which passes uneventful to its completion. They both enter society, professional and social. The educated man whose knowledge of Cæsar, Bain and Spencer tries to apply the activity attained by these ancestors to the modern profession. He fails, but adaptiveness taught by education soon causes him to move to more secure territory and he makes the needed change of dropping precedent and living in current events. While the man possessed of only natural advantages picks his way slowly and surely, relying much upon the profession for his uplifting, until he has amassed the fortune of knowing and of confidence; he then places that giant strength that he is so familiar with, within the cycle, and the momentum of his profession is increased. He plays no harp but that which he has seen made within his own lifetime. Both lie down, at the close of the day, one pushed at the inceptive of his professional career, the other at the termination of his. Both at the end become cultured by accepting the teachings and cultivation of their profession. The analysis, then, of these two characters at the close of their life's work is difficult because of their symmetry.

The above consideration of these two professional gentlemen refers to successful ones. One accepts the responsibility of advancing society by his own educated personality, the other retards retrogression in all walks of life by his conservatism and fairness of judgment, things that we, as a people, expect of educated and cultured gentlemen; whether their education and culture be inherited or acquired, they are supposed to strengthen and give equilibrium to the chaos, and harmonize the estrangements met with in modern society. Any disposition other than the above is alien to the betterment of their own personal progress and to society.

The professional gentleman should know when to make the application of logic and culture. It is true that culture may be absorbed to only a certain extent by various individuals. The scientific reason for this is answered in the following explanation: The innate qualities of psychoplasm may be at great variance chemically and otherwise in different individals. The great designer of the universe may have prepared each embryonic cell of different chemical constituents and this synthetic condition of each cell, no doubt, causes the great variance of inherent and susceptible qualities so apparent in different individuals.

The acquiring of culture in society will surely regulate the conduct in our daily professional lives. This can be accounted for in the following theory: When two elementary brain processes have been active together with or in immediate succession, one of them on reoccuring tends to propagate its excitement into the other. Some one brain process is always prepotent above its concomitants in arousing action elsewhere. Therefore, if any one particular portion of the neural elements is sufficiently developed to form a habit of culture, we can readily see that whenever its function is exercised, its predominating excitation has a tendency to stimulate into action impulses of similar nature.

The African Negro's ideal of beauty asks that the human face be adorned with the broad flat nose, while the Caucasian race admire those of the more prominent outline. The foregoing, surely, pictures the worth of environments and the utility of the same.

While our ideal may vary the existence under one purpose, the betterment of humanity should direct our aspirations in one channel and make its members of equal culture and refinement.

Our profession in its progression has taught personal pride and care, taught us to love and revere the beautiful in art and science, to honor heroism and achievements in other walks of life as well as our own. All this is culture, all this fits a man for modern society and still continues him as the professional gentleman.

Therefore, a close application to our own profession with its kindred relations will surely fit us for useful and lasting lives.

Remember this, that culture make a habitant of any character that possesses sufficient intellectuality to make the tenure of that culture consistent. Education may supply this high plane of intelligence, and, perhaps, it may not. A man may acquire this coveted trait without following a fixed form of preparation, other than aspiring to live within the purpose of his calling, if it be a pure one.

When a character has attained this high position upon the acclivity of true culture, it will materially accrue to his individual betterment and the permanency of his profession.

Culture in its entirety can not be obtained without the aspirant commingling freely with society, both professional and social, and becoming acquainted with its demands. This must be practiced whether you are literally educated or not.

Man is an endogenous plant and education is the method of unfolding him, whether it be inherent or acquired.

I have refrained from citing allegories and noteworthy maxims from Carlyle, Smiles, MacCauley, and other traditional or current writers, because of the weight their sayings impose upon the thinker; but it is to these men I owe tonight my diction, my inspiration and their reception into my life. But above all, I owe to my Ruskin and an acquaintance with the history of our noble dead and the illustrious living, that adorns our own profession for whatever purity of thought and culture I may possess.

MASTICATION—WHAT IT IS—WHAT IT DOES—ITS PURPOSES AND THE RESULTS—THE CAUSES AND EFFECTS OF POOR MASTICATION—THE REMEDY FOR POOR MASTICATION.*

BY DR. FRED W. PARKER, CHICAGO.

As the title of my paper indicates, it deals with neither detailed description of appliance, operation or method of procedure, nor any report of cases or operations, but presents a few thoughts on a subject broad in its scope, important in its relation to dental conditions, normal and abnormal; and most pertinent, it seems to me, to us who are called upon to care for the dental organs of our fellow men. I have read quite a little the past few months along these lines, and while I can not hope to give you much wholly new and original, I do hope to interest you and bring out some discussion.

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*Read before the Odontographic Society of Chicago.

In doing the every day operations we are called upon to do, the restoration of lost teeth or parts of teeth, we do one thing always if we serve our patients well, viz., establish, as far as possible, the normal occlusion of the teeth. Why? To aid mastication. And so I have chosen mastication for my subject, and ask you to consider briefly with me, first, what it is; second, what it does, its purposes and results; third, the causes and effects of poor mastication; and fourth, the remedy, that is the means of establishing efficient mastication.

The Century dictionary defines mastication as, "The act of chewing; the process of triturating food with the teeth; manducation," and while this act is accomplished mainly by the muscles of mastication (in man the temporalis, masseter, internal and external ptyergoids), other tissues, as the tongue, cheeks, lips and glands aid materially in the process.

Mastication in man as in many other animals is practiced very early in his career, and we see him using such masticatory means as he has, in his endeavor to feed at the mother's breast. It is an instinct which stays with him as is witnessed in his habit of sucking thumb or finger, and later on in his endeavor to get everything he grasps to his mouth. When he is older and goes to school he chews his pencil and pen-holder, and many children chew rubber or gum with great satisfaction, and with much benefit I believe.

Among the early races of savages, semi-civilized and even civilized peoples, this instinct to masticate found opportunity for its satisfaction in the nursing at the mother's breast, and later in the chewing of coarse, raw foods, both animal and vegetable, which were then provided, but as civilization has advanced bottle-fed babies are very plentiful (rubber nipples don't require much effort), "food" babies are numerous, modern methods of cooking and preparing foods have obtained and the instinct has received no stimulus and consequently the modern man is not a good masticator.

If, then, man from the very beginning masticates, urged by a powerful instinct, let us now see why it is so. What does mastication do, what are its purposes?

In the first place, mastication in the very young infant has for its purposes the insalivation of the liquid foods and the development of the organs of mastication then present. Later, when semi-solid and solid foods are taken, the process does more. Many such foods, especially if they be dry, can not be swallowed, except with much effort, unless they be first broken up by the grinding and tearing process of mastication, thus allowing the free insalivation and consequent softening of the foods. This is especially true of raw vegetables and the dry and hard bread crusts. Such foods exert a powerful stimulating effect upon the salivary glands and the flow of saliva is very free. The saliva is a very potent agent in the digestion of starch, which is present in large quantities in many of our vegetables and other foods, changing the starch to maltose, and when the flow of saliva is normal and what it should be, much of it goes with the masticated masses of food into the stomach, there to continue its action on the starch.

Some authors claim, and it is true without a doubt, that the act of mastication through sympathetic or psychic influence stimulates the glands of the stomach, and starts there the secretions, thus preparing the stomach for the entrance of the masticated food. It is also asserted that the heart in a reflex manner is stimulated and the general circulation increased.

And now, in concluding the results of mastication, let us consider the effects upon the maxillæ, the muscles concerned and the teeth.

The maxillæ and muscles of mastication, like any other bones and muscles attached, depend in a great degree upon use for development, and the more vigorous and constant the exercise, the stronger, more massive and more healthy are the structures. By use and use alone are muscles kept strong and healthy, for by the constant and regular movement of the muscles the flow of blood and lymph is stimulated and increased and the building-up and strengthening process is carried on. The muscles grow and the maxillæ grow accordingly; the mandible, by its constant movement in all directions, especially by its lateral movements, and by the pressure of the tongue from within, lengthens and broadens, the maxilla in its endeavor to adapt itself to the mandible, aided by the influence of the force of the planes of occlusion, and by the downward and outward pull of the muscles lengthens and broadens in like manner.

The abundant supply of blood required by the muscles and bones for their upbuilding has its beneficial effect upon the teeth growing within the bony walls, and as a consequence there result fine and regularly arranged rows of large, well formed teeth.

The dental pulps, the peridental membranes, the gingivi and the buccal mucous membranes, all share in the benefits of this copious bathing of blood and lymph, and they too are strong and healthy.

Thus we see the beneficial results from the proper and normal exercise of this function. What are the conditions when the mastication is poor and inefficient? Why should mastication in this day and age be so universally inefficient? We shall consider the latter query first.

Probably the most potent cause of the poor mastication of the modern man lies in the nature and quality of his food and the methods of preparation and cooking employed to make it presentable and palatable. Nowadays it is no uncommon thing for the infant to be fed from birth on prepared foods, of which there are numerous varieties. The market places offer endless varieties of prepared and predigested foods and beverages, and great factories are builded to produce them. Our foods are, in the majority of instances, cooked and served in such a way that they are soft and mushy, requiring but very little mastication to make deglutition easy. In many instances over-kind parents are at fault when they feed their children at the time when the temporary teeth are erupting only liquid or semi-solid foods, thereby teaching their children to like and become accustomed to milk and gravy-soaked foods which have previously been reduced to a more or less finely comminuted state, bread, with the crust removed, soaked until it can be swallowed without any mastication whatever, soft puddings, etc., etc. With such a diet upon which the child is taught to subsist, his instinct to masticate is given little opportunity for gratification and consequently the child does not learn to masticate.

Another cause for inefficient mastication may lie in some defect in the masticatory apparatus. The teeth may be missing or carious and consequently tender to the stress of mastication, the peridental membranes may be diseased and the teeth loose and unfit to bear the necessary stress. Irregularities and crowding in the arrangement of the teeth in the jaws, with poor occlusion resulting, will very often render thorough mastication of the food impossible.

The habits of living, too, have a wonderful influence along this line. In this day and age of hurry and bustle, especially in our own great city, people are apt in their search for the almighty dollar, to give much too little time for their meals. It is eat in a few minutes in the morning, run for a train or car to meet business appointments at the office or shop, run out for a few minutes at noon for lunch, wash down imperfectly masticated masses of food with coffee, tea or other beverage, and hurry back again to work. At night a little more time, perhaps, is given for dinner, though in many instances social and other engagements after dinner make a hasty meal a necessity. Usually when one has an after-dinner engagement he is expected along about midnight to add insult to his already injured stomach by eating some outrageous combination.

But I must not digress. What are the results of this habit of poor mastication? Let us see, first, what are the results as regards the masticatory organs themselves.

As we have said in the beginning, the maxillæ and muscles of mastication broaden and become massive only through use, and consequently if mastication is poor we see a corresponding failure in development of the muscles and jaws, a narrowing and shortening of the arches, a subsequent crowding and irregularity of the permanent teeth with mal-occlusion and many times mouth breathing. The tongue is not developed as it should be, and the pressure which it exerts within the mandible, which pressure tends to widen the mandible, is lost. The salivary glands are not called upon to perform the function they should, and consequently are always small, the flow of saliva inadequate and many times faulty.

Dental caries and pyorrhea alveolaris are in many many cases the ultimate result of conditions which obtain as the result of poor mastication. Have we not all seen patients whose mouths were a veritable hot-bed of caries, the result, in a great degree, to disuse of the dental organs? Have you not seen cases of pus-exuding gums and slime-covered teeth that resulted from disuse of the teeth in a great degree? Can't you call to mind numerous cases of inflammation of the gingivi, pockets along the sides of the roots of teeth and hypertrophy due to mal-posed teeth and the resultant faulty contacts and occlusion? We are all aware of the cleansing effect of the excursion of the food over the occlusal surfaces and through the embrasures of normally arranged teeth, how the collection of calculus on the necks of the teeth and the lodgment of food particles in the pits and fissures is prevented, and, too, we are aware of the frightful conditions which result when the arrangement is other than normal. The lodgment of food takes place, fermentation is set up and decay begins; the calculus is deposited without interruption upon the necks of the teeth, food particles and debris are pushed beneath the free margin of the gums and an inflammation starts which will finally terminate in pyorrhea alveolaris.

Besides the pathological conditions which arise in the mouth, other troubles of very great import exist as a sequence of poor mastication. I refer to gastric and intestinal derangements.

The foods that should be digested in the mouth by thorough mastication when passed to the stomach partially digested, give that organ more work than it can perform. All foods must be ground and torn to bits before they are swallowed. Large, coarse masses resist the action of the digestive juices and derangement and indigestion result. Besides over-eating is a result of poor mastication, and fuel is added to the fire. Dyspepsia in its many forms is very common among our people today, and the cause of the vast majority of cases lies in the prevalent habit of bolting the meals.

If, then, so many evils result from poor mastication, it devolves upon us to better the conditions. In what ways may we be of service in this matter?

We can not hope to be able to direct the feeding of infants, perhaps, but we may be of much assistance in the advising and teaching of parents in the matter of foods for the children and the manner of feeding. We may utter a word of warning against the common practice of feeding too much liquid, soaked and softened food, and point out the necessity of teaching the child to eat and become accustomed to the coarser and harder foods including the crusts of bread, which afford an excellent opportunity for masticatory exercise. We must explain the fact that exercise, lots of good vigorous exercise, is necessary for the proper development of the muscles and bones, in order that ample room may be provided for the proper arrangement of the teeth. Every parent who cares enough about his child's teeth to send or take him to a dentist is always very much exercised when the permanent teeth show mal-position in erupting.

Opportunities at the chair will often present themselves when an operator may talk along these lines to a parent, and the sooner such ideas are understood by the laity, the sooner will the rising generations show a betterment in the masticatory apparatus. Most people nowadays don't want their children to crack hazel nuts, pecans, filberts or any other of the softer shelled nuts, with their teeth, but it seems to me that such a habit is preferable to the other extreme. I remember well, if you will pardon the allusion, when I attended the district school, that I cracked hazel nuts every winter, with my teeth, and even tried a hickory once in a while, and I believe I'm better off today for having done it. All the boys did it, and no one ever broke a tooth. Apples, too, furnish excellent exercise for the development of the masticatory organs if properly eaten. They should be cut with the incisors and not with a knife.

Not only may we instruct the parents as to the dietary and habits of mastication of the child, but we must instruct the child when he comes to us for services.

Most children can be very much interested in their teeth if we will go about it aright to awaken such interest, and we may teach them to use their teeth and give them the proper care with the brush and dentifrice.

We must examine the mouths of our little patients often, especially if the teeth are showing a tendency towards mal-position, that we may take the case at the proper time for the application of such regulating appliances as are necessary. The cavities must be filled when they are discovered and the deciduous teeth extracted at the proper time, for many a case of mal-occlusion and consequent inefficient mastication results from either the too early or too late extraction of these teeth.

The teeth must be kept free from calculus, and all causes of inflamed and sore gingivi or peridental membranes must be removed. Any condition of the mouth, in fact, which in any way interferes with mastication, should early receive the attention of the family dentist, or perhaps the dental specialist.

Many times in the clinic of Northwetern Univerity Dental School have I seen our grand good teacher, Dr. Black, examine the mouths of young people whose teeth were sore and decayed, covered with slime and debris, of no use whatever, and turn to the operator and say, "Well, clean these teeth thoroughly, look after the cavities and *instruct the patient to use the teeth.*"

We have all had such cases under our own observation, and we all know that vigorous use of the teeth is a powerful factor in the prevention and treatment of all dental lesions.

People must be taught to use their teeth. They must realize that a meal is an important thing, an end in itself, and not a necessary task to be quickly done, that work may again be taken up, but a time to be spent quietly and leisurely, with happiness and freedom of mind and body.

DENTISTRY IN EGYPT.

BY HORACE WYNDHAM.

The practice of dentistry in Egypt is of great antiquity. In all probability, indeed, it dates from prior to the building of the pyramids. Reference is frequently made to the subject by the classical writers living in the far off days of the Pharoahs and even before this time it is known that every tribe had its own *hakim* whose special business it was to attend to the teeth of his tribesmen. Hieroglyphics that have lately been deciphered show that the methods of these early practitioners were of an extremely rough and ready description. Judging from drawings of them at work they were also extremely painful. Thus, in one of those artistic efforts which the present writer recently saw in Cairo the patient is shown to be strapped down to a plank during the performance of an operation, while other sufferers —presumably slaves—awaiting their turn for treatment are closely guarded by soldiers.

In Egypt at the present day dental science is much more advanced. At any rate many of the Europeans engaged therein who do business in Cairo and Alexandria are highly qualified men, and even in the smaller towns such as Port Said, Suez, and Ismailia it is quite possible to obtain skilful treatment. A number of European dentists are to be found in all these places. Some of them are English, while others are French, Italians, Germans, or Austrians. In both Cairo and Alexandria there are also a few Americans, who between them have worked up a very fair connection. They draw their patients for the most part from among the large British community in these towns, as the natives generally prefer to patronize their own countrymen when their teeth require attention.

The business premises of a European dentist in Egypt possess few distinguishing features. As a rule the work is carried on at the practitioner's private address. A brass plate, printed in English and Arabic, is affixed to the wall outside and a case filled with artificial molars occupies a prominent position in the entrance hall. This last is always an object of absorbing interest to the native population, who crowd round it, chattering and gesticulating to such an extent that the attendant doorkeeper has to bring his rod into active use before he can disperse them. The same thing happens whenever a patient is seen to enter, numerous small boys congregating under the window of the consulting room in the hope of hearing the sufferer shout. As may be imagined, when an anaesthetic is employed they are much disappointed.

Native patients comparing notes in front of a dental office in Cairo.

The localities chiefly affected by the European dentists in Cairo are in the vicinity of the Esbekieh Gardens or the Place de l'Opera. Either neighborhood is in the heart of the chief commercial quarter of the town, while it also has the advantage of being close to the principal hotels, such as Shepheard's and the Continental, as well as to the residential district, from which a desirable clientele is most easily drawn. The different consulates and government offices, etc., are also all within a stone's throw of this quarter. A few of the practitioners add to their incomes by keeping pharmacies and selling drugs, but the combination is not such as inspires confidence among the best class of patients. These are naturally of opinion that dentistry alone is quite enough to engage the attention of one individual. In Alexandria the thoroughfares chiefly patronized by members of the dental profession are the Rue Cherif Pacha and the Ras-et-Tin boulevard.

Egypt is proverbially an expensive country to live in. It is only natural therefore that the charges for dental treatment should be high. In the case of a European practitioner the lowest fee for a consultation is the equivalent of at least five dollars American money, while it is often double this. Toothache, accordingly, is a costly luxury in the land of the Pharoahs. Among the less aristocratic practitioners—such as those who make dentistry a branch of drug selling—the charges are, however, somewhat reduced. Indeed, relief (of sorts) can be got for twenty-five cents.

Native dentists are, of course, a good deal more moderate than European ones, if only for the reason that their patients are almost entirely restricted to members of their own race. They seem, however, to have no fixed scale of fees, their rule being the simple one of taking all they can get. Thus, while they will perform an extraction for a couple of piastres (i. e., ten cents American) they will—if they think they will receive it—ask twice this from another sufferer for precisely the same operation. As an Arab intensely dislikes parting with money it will be readily understood that he endures considerable pangs before he places himself in the hands of a dentist. He is also apt to suffer a good deal when he has at last brought himself to such a consultation, for the average Egyptian dentist is not in the habit of using cocaine or gas for anyone who is not prepared to pay liberally for it.

Most of the native dentists in Cairo and Alexandria live in special districts, as is also the case with members of other trades and professions. Over the doorways of their premises they usually display a notice printed in Arabic calling attention to their skill. As the average Arab is unable to read, this does not make much impression. To get over this difficulty, accordingly, it is customary to engage an attendant to stand outside and proclaim in a loud tone of voice the cleverness of his employer and the rascality of his rivals.

A dental office in Alexandria, Egypt.

When, as sometimes happens, three or four practitioners live next door to one another, a tremendous din arises. Another result is that the attendants—who are paid a commission for influencing business—often engage in a free fight in their anxiety to secure a patient. This, as may be imagined, occasionally leads to police interference.

A district much affected by the native dentists in Cairo is the one known as the Muski. It consists principally of dark and evil smelling alleys and is always densely crowded. When a sufferer pays a visit to a practitioner he is usually accompanied by a large number of friends and relatives, who come presumably to see fair play. As many of these as possible crowd into the operating room—often nothing better than a bit of the courtyard screened off by an awning—while the remainder linger in the doorway. If these latter do not at least hear the patient shout lustily when the forceps are applied they feel that their day has been wasted.

Before actually proceeding to business the dentist spends a great deal of time in discussing the remuneration he is to receive. The matter is regarded almost in the light of a diplomatic treaty and a vast amount of haggling ensues before terms are settled. Everyone present takes part in the argument, the dentist swearing by the beard of the Prophet that he can not abate a single piastre, and the patient and his friends declaring that the sum demanded is excessive. At last, however, an agreement is arrived at and the operator, still grumbling that the payment is an insult to his status, gets to work. As a preliminary, a wedge of wood is inserted between the patient's jaws. The practitioner then tucks up the sleeves of his robe, seizes the largest pair of forceps he possesses, and hauls out the tooth by main force. Occasionally he removes the wrong one at the first attempt; in this event he is usually accommodating enough to draw a second one free of charge. The molar, when extracted, is much prized by its late owner, who wears it suspended around his neck as a charm against subsequent attacks. He then departs with his admiring friends, the hero of the hour.

The great ambition of a native dentist is to work up a *clientele* from among the European community in the neighborhood. To this end he invokes the aid of the press and inserts advertisements in the daily papers. These usually allude to his own skill in the most flowery terms imaginable, while at the same time they decry—in a fashion that verges closely on the libellous—that of his rivals. The following is a specimen of the manner in which they do this:

GREAT NEWS!

"Mahommed Ali Ben Hassan informs Cairo public that very high class dentistry is carried on by him at No. 3 Sharia-el-Manuk. Terms quite dirt cheap! Extraordinary skill! English gentlemens must be aware of Said Yesuf and other dental rascals in neighborhood. Mohommed Ali Ben Hassan's testimonials are much most genuine."

In the small villages, as well as in the desert oases, the native dentist as found in Egypt seldom possesses even a smattering of real knowledge. His *modus operandi* consists for the most part in working upon the superstitious fears of his patients. For the relief of these he provides all sorts of "charms"—such as alleged fragments of the beard of Mahomet, or relics of the saint reputed to have been brought from Mecca—which the sufferer is directed to rub the affected tooth with. When they fail—despite the unstinted faith reposed in them—to bring about a cure the patient is told that he is under a spell and that more drastic treatment must be resorted to. This usually takes the form of removing the tooth from its socket with the aid of a spearhead. After an experience of this description the sufferer generally finds it necessary to apply for admission to the nearest hospital. In Cairo there is an excellent one for natives known as the Kasr-el-Ain. This institution is served by a staff of both Englishmen and Egyptians.

Native dentist's establishment in Port Said, Egypt.

PRACTICAL THERAPUETICS.

SEPTIC PERICEMENTITIS AND INCIPIENT ABSCESS.

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO.

In my last article on peridental inflammation, I discussed quite generally the local remedies to be applied in the treatment of this condition, and intimated that, in my opinion, pericementitis caused by mechanical or chemical irritants can best be treated by the local application of drugs and remedies. But in those cases where this membrane has been irritated by micro-organisms, or their poisonous ptomaines, it is necessary to resort to the internal administration of drugs.

In the earlier stages of peridental inflammation, it is not always an easy matter to ascertain the *true cause* of the disturbance. For instance, in those cases following the removal of the pulp tissue, it is difficult to know whether the cause is the root filling, the medicine used in the treatment or whether we failed to *maintain asepsis* in performing the operation. I am inclined to believe that it is more frequently the latter than we are willing to admit. Certain it is that the more nearly we approach *absolute asepsis* in these operations the less peridental trouble we will have.

A prolific source of septic pericementitis is escaping micro-organisms and ptomaines from putrescent root canals. It is in these cases that good judgment must be exercised and extreme care taken in order to prevent the formation of an alveolar abscess. There is no condition which we are called upon to treat wherein a practical knowledge of pathology and therapeutics will serve us better than in these particular cases. Frequently patients delay coming to the dentist until the infection has progressed to a point where all remedies will fail in aborting an abscess. But in many instances abscesses may readily be prevented by the use of proper remedies at the proper time.

In those cases where the infection comes from a putrescent root canal, our first duty is to open into the canal and let the confined gases escape. This can be accomplished without producing much pain by firmly grasping the tooth between the thumb and forefinger of the left hand and with a sharp bur rapidly drill into the pulp chamber.

The tooth containing the putrescent pulp can be treated by one of two methods, i. e., to place some good disinfectant in the pulp chamber and cover the medicament by placing in the cavity a pledget of cotton soaked in liquid vaseline; or, by selecting the proper drugs, the remedy can be hermetically sealed in the pulp chamber. (I refer here only to the first treatment.) I have been using, and much prefer, the latter method for reasons which will be fully discussed, together with the drugs used, in a subsequent article on the therapeutics of *putrescent pulps*.

Your attention will now be directed to the treatment of the infected peridental membrane. The local remedies given in my last article will prove extremely useful; and, in order to control the infection, and at the same time aid nature in readjusting the abnormal condition, it is not only our privilege but it is our duty to administer internal drugs. These are conditions where *alteratives* are indicated. It is desirable to change the condition, and at once. The great alterative drug, as is well known, is potassium iodide. This drug should be administered in solution well diluted. The following prescription will prove useful:

℞ Potassii iodidi ʒj.
Syrupi sarsaparillæ comp. f℥iij.
M. Sig.—Take a teaspoonful three times a day after meals.

While the above would be the general directions, I would instruct the patient in cases of septic pericementitis and incipient abscess to take a teaspoonful every two hours until three doses are taken. Then follow the directions on the label. It is well also to advise the patient to add the teaspoonful of the remedy to a half wine-glassful of water, as this further dilutes the potassium iodide, the base of our prescription.

Let us analyze this prescription. The potassium iodide is a great alterative. The compound syrup of sarsaparilla dilutes the base and also masks the taste; besides it has medicinal properties. It contains the fluid extract of sarsaparilla, of licorice and of senna, as well as the oils of sassafras, anise and gaultheria. Our vehicle, then, is slightly tonic, stomachic and cathartic—all of which are valuable.

It might be claimed for this prescription that it is almost a specific remedy, yet it must be remembered that no therapeutist can tell exactly what internal remedies he would suggest without seeing the case; for, as I have stated in a previous article, there are many circumstances and conditions which modify the effect of drugs. One of these conditions is the climate. In malarial regions, and in the spring of the year in this locality, the salts of quinine can be given with beneficial results. The salt which I have been giving in the cases under consideration is quinine bi-sulphate. Nearly all pharmacies have the various salts of quinine put up in the form of pills. While these pills may be given, I much prefer to write a prescription for capsules. The gelatine capsule is soon dissolved in the stomach; thus we get the action of our drug more rapidly than when given in the hard, dry, pilular form. The following prescriptions can be written for the drug in two-grain doses:

℞ Quininæ bisulphatis gr. xxiv.

Ft. capsulæ No. 12.

Sig.—Take one capsule every hour until the effect is noticeable.

Quinine acts differently upon different individuals. Most adult patients know the effect of this drug upon their system, and, therefore, will be able to aid the dentist in determining the amount of quinine to be taken.

One of the most prominent symptoms in all pericementitis is *pain*. In many cases the pain can be alleviated by local applications; but quite often, especially in septic pericementitis and incipient abscess, it is necesary to administer some drug which acts upon the central nervous system, thereby controlling the pain. There are several drugs, such as acetanilid, potassium bromide, etc., which, properly given, usually quiet the nervousness of the patient. But in many cases the pain is so severe that the dentist knows, from sad past experience, that counterirritation gives but slight or temporary relief, and that most of the hypnotic drugs or preparations fail to produce the desired effect. What, then, are we to do in these cases? Allow our patient to suffer until the effect of our alterative has been produced, or perhaps an abscess has developed? No! It is in these cases that we should administer that which the physician gives—whatever may be said to the contrary—when he has a patient demanding immediate relief from pain. Opium, especially its chief alkaloid, morphine, is the one drug that can be depended upon to stop pain. Pharmacologists have proven quite conclusively that morphine has no local action; but all agree that, when administered, it acts upon and controls the central nervous system. This drug can be obtained in tablet form, containing one-eighth grain each. Therefore, it is never necessary for a dentist to write a prescription for the drug. In my opinion, a prescription should never be written for it; as the patient, being satisfied with the effect produced, could get the prescription refilled on the least provocation, thereby making it possible for the habit to be innocently acquired. In these cases a tablet ($1/8$ gr.) could be administered to the patient while at the office, and one—never more than two—given to the patient to be taken at intervals of one hour, if needed.

There are many other drugs and remedies recommended by various practitioners. Those which I have here discussed have served me well in the treatment of these aggravating conditions. The dentist can serve his patients better by having a thorough knowledge of a few drugs and remedies, than a superficial knowledge of many.

Our next article will be on "The Treatment of Putrescent Pulps."

PROCEEDINGS OF SOCIETIES.

AMERICAN DENTAL SOCIETY OF EUROPE.

DISCUSSION ON DR. GEORGE CUNNINGHAM'S PAPER ON "THE CANTILEVER BRIDGE: ITS PRINCIPLE. AN ANSWER TO SOME CRITICISMS THEREON.

THE PRESIDENT

Said the paper had an intimate bearing on a number of the papers and discussions that had already taken place, especially that read by Dr. Jenkins in connection with prosthetic work, because a great deal of it was based on the fact that bridge work at the present time was looked upon as one of the most artistic, or at least one of the most useful, forms of restoration.

DR. W. MITCHELL

Said the Society ought to thank Dr. Cunningham for producing a very practical paper, dealing with the theoretical or engineering side of bridge work. The authorities quoted were unquestioned. One great trouble with the preliminary training of the dentist was that it was more or less destitute of instruction with regard to elementary principles of applied mechanics, and the principles of stress and strain were not understood as perfectly as they should be. A great many of the deductions had been made from known material, and he took it that nearly all the demonstrations had been made with iron or steel of a known quality and known dimensions, and the deductions made therefrom could not be disputed. The dental profession was suffering from a condition of affairs that did not apply to any branch of mechanics. The variety of materials at the disposal of the dentist, and the manner in which he had to modify and combine them under different circumstances, were things with which the average engineer had not to contend. The dentist had material of the most brittle nature to combine with that possessed of the greatest ductile capacity, fragile porcelain with ductile gold, and the gold had to be combined with platinum, iridium, silver, copper, cadmium, and various other metals. And when the different conditions under which they were used were taken into account, it spoke much for the work dentists were able to turn out, especially when that work had to be applied to physiological conditions over which there was no control. The engineer had to contend with natural forces more or less self-limiting, but the dentist's conditions were illimitable. He quite concurred with Dr. Cunningham with regard to the benefits afforded patients by the application of the cantilever principle, and it had been one he had used in his own practice for a very long time, and it had been used by his brother and Dr. Day. Therefore there had been opportunities of seeing how it would work. He quite agreed with Dr. Cunningham's contention that decay did not occur in connection with the spur at the end of the cantilever. He had seen cases that had been in use for from 6 to 9 years, and there had been no recurrence of decay whatever. The teeth had been in a thoroughly sound and workable condition. He complimented the essayist on bringing that phase of the question forward; it gave an idea of the possibilities and of what could be utilized for the benefit of patients in doing away with more or less objectionable plates. If any member had to choose between a nicely made bridge, even though it might possibly in some cases be shorn of the great amount of masticating surface that might be afforded by the plate, the efficiency of the smaller amount would really compensate for any loss of superficial area that might be found necessary. Bridge work had come to stay. He sympathized with Dr. Cunningham in the criticisms he had received, and he knew that a lot of such criticism was not based upon practical experience. Theory with practice were a very hard team to beat, but if he had to choose between the two he would take the practical man, because if his experience was based on practical deductions he was the man that was wanted. Theory which was not borne out by correct practice was of no use.

DR. KIRK DAVENPORT

Said he agreed with the paper entirely. It was a practice he had carried out for a number of years, and he had met with universal success. He had met with the work of other men too, and had never seen a failure.

THE PRESIDENT

Said that as far as his experience went, for a long time he advocated and used bridges that had had but one attachment with what was called a free end. It had been within the last month that he had seen a bridge put in 14 years ago on exactly the same principle. Taking a very common form of bridge with one or two bicuspids missing, and the molar in place, the intervening teeth could be supported in this way. It was necessary to be careful to see that there was a good self-cleansing space between the anterior point of attachment and the supporting tooth and if a saddle with two teeth was used, or if used with simple facings, with an enlarged top to give occlusal surfaces, the self-cleansing space was found underneath and between. With sufficient space for cleanliness, and having a space at the gingival margin as great as that between natural teeth, it would be found that the decay of the teeth used for the support of the free end was a myth. Often a distal cavity was found in cuspid or a bicuspid, and in such cases he had made a small tube to go into the cavity, set either with gold or amalgam. When the bridge was put on there was a pin similar to the pin used for the tube teeth, which went into that tube, in the filling in the bicuspid, and the cap was put on at the back. The result was something which restricted the motion in front, but allowed the tooth to move in a normal way. As soon as a firm tooth was given motion it would not get loose. Bridges which failed, it did not matter from what cause, if they failed, they failed, and it was like the breaking down of a motor car, if one had to walk home the result was the same. A good many such failures were due to the fact that the crown was not sufficiently strong to stand the strain. Everyone should consider the amount of work that was going to be brought upon the bridge when it was put in. Many people made all their bands or crowns out of the same gold, and made all their bridges of the same thickness and strength, regardless of their length. It was a question of faulty construction, not a question of the principle at all. There were so many points in connection with such things that a great many systems were condemned when it was not a question of the system at all, but a question of detail. He believed the criticisms which had been published in connection with Dr. Cunningham's paper had been brought about by the fact that the people who had made them had never had actual experience, nor had they seen cases which would stand the stress and strain.

Dr. J. W. Gale

Said the cantilever bridge had been carried on in Dr. Merrill's practice exclusively, and although a few failures had occurred there were not so many as the failures which occurred in ordinary everyday practice. There were breakdowns, as there were breakdowns in everything. Nothing had given greater satisfaction to his patients than simply constructed bridges with one foundation. Judgment was a very large element in the application of dental science, and in cantilever bridge work there was a very broad field for good judgment. A little difference in method was desirable when the work was done for an Englishman than when it was done for a German, because they ate different things. The German brödchen required a hammer to break it, so that the grinding surface of a cantilever bridge in Germany should be narrower than in America or in England. The application of the cantilever bridge was only a matter of experience and judgment, and as soon as a man obtained those he succeeded in cantilever bridge work.

Dr. Jenkins

Did not feel himself competent to discuss the question from the engineering standpoint. He had listened with a great deal of interest and gratitude to Dr. Cunningham's excellent scientific paper.

He desired time to study it at his leisure, and to fully grasp its significance, before he ventured to express an opinion upon work which had been thought out so carefully.

DR. CUNNINGHAM

Said there was nothing left for him to reply to, and he desired to say something which the critics had not said. Everyone was agreed that the field for the use of the cantilever was great, and would go on extending. Even the unsupported cantilever was a thing that would enable a man to be most useful to his patient, and it replaced all the waistcoat pocket pieces. The mixing of brains and intelligence with the material was a great point. He agreed with Dr. Gale, because he was at a restaurant on the previous evening, and his British teeth were unable to cope with the German bread.

DISCUSSION OF DR. WM. MITCHELL'S PAPER ON "A PLEA FOR A MORE ARTISTIC CONSIDERATION OF PROSTHETIC DENTISTRY."

DR. N.S. JENKINS

Said he was most grateful to the essayist for doing him the honor to ask him to open the discussion upon his excellent paper. The time was ripe for considering the important questions raised by the essay. It was well that those questions should be considered in a society composed of so many distinguished representatives of operative dentistry from so many European countries. The practices which the society represented were unique. All its members had founded their reputation chiefly upon operative dentistry, and formerly the members were accustomed to regard prosthetic dentistry as an unimportant part of practice compared with the surgical treatment which had formed so prominent a feature of the Society's work. It was only the ripe maturity which came from the experience of wide practice and even wider observation which had taught the profession that in the prosecution of their high calling there was nothing insignificant, and that there was no portion of their work which was not often sure to be of supreme importance. Many of the members began by believing that the clever manipulation of gold constituted the highest claim to professional distinction, but they had lived to see that to be a good operator in gold was but an incident in the character of the accomplished dentist, who should be at the same time a physician, a surgeon, an artist, and a mechanic. It was necessary to the proper fulfillment of the profession's mission that dentists should be able to restore the mouth from any condition of dilapidation to both usefulness and beauty. The two went together. The condition of health which dentists had to re-establish was not a condition of true health if it was not harmonious in all particulars. So when the members undertook a case of restoration, either in a crown or bridge, or a removable denture, they but partially performed their duty if they did not produce an æsthetic as well as a comfortable condition. The essayist had not condemned the pernicious influence of vulcanite too strongly. Before that influence had become established, much good and artistic work had been done upon silver and gold. After the advent of vulcanite this class of work practically disappeared, and with it the artist of the laboratory. For forty years the profession had been living in the Dark Ages of artistic prosthetic dentistry, only occasionally enlightened by the work of a few men of genius. Not that vulcanized rubber had not had, and would not continue to have, its legitimate province in prosthesis, but instead of being the mainstay it should become only the occasional adjunct of the practitioner. Vulcanite had been the determined enemy of conservative dentistry. It had been easy for ignorant or unscrupulous men to persuade suffering patients to sacrifice all their teeth in one fell swoop, because they were so easily replaced by seemingly useful substitutes. On the other hand, the discovery of dental vulcanite had been immensely valuable in some directions. In spite of its tendency to become offensive, it had had its place in retaining plates, and even in regulating appliances in orthodontia, and in the hands of skilful and conscientious men it had been most useful in ordinary dental prosthesis. But its defects were so numerous, and the ease with which it could be manipulated was so misleading, and often so demoralizing, that it had been outrageously misapplied. A new era was dawning in prosthetic dentistry. The profession was at last ripe for methods and materials which should place that department of practice upon a higher level, and which should produce not only more healthful conditions in the month, but which should also make the highest artistic results obtainable, not only by the specialist in prosthesis, but also by the general practitioner, and to that end Dr. Mitchell's admirable paper would have contributed.

DR. GEORGE CUNNINGHAM,

While agreeing with the essayist in spirit, resented vulcanite being termed a blight. The fault was not with the material, but with the men who applied it. The material was not to be made responsible for the sins of the profession. What was necessary was the removal of ignorance, and the inculcation of intelligence. He did not think Dr. Mitchell needed to go to America to find a sculptor in a school. While Dr. Mitchell had been writing and reading papers, he, Dr. Cunningham, had been devoting his time and wealth to carrying out the work practically, and Dr. Mitchell had forgotten to say a single word upon the subject. He alluded to the Institute of Dental Technology. What Dr. Mitchell had seen in America was the outcome of the seed sown in the Institute of Dental Technology in London. He endeavored to create a school, but it was a failure. His idea was to form dentists, or as he preferred to call them, something higher than dentists, denturists. If a man desired to manipulate plaster the proper thing was to find out the man who had lived his whole life in plaster, and the plaster-cast maker was the man. In each branch we find a specialist. A great many years ago a man who was now very eminent, Mr. Treves, asked him on what conditions he would undertake the foundation of a dental school in connection with the London Hospital. He stated his views in the presence of the warden of that hospital, and was asked how those views were to be carried out. Mr. Treves asked whether he would undertake the work, and he said he would on one condition, that he was allowed to elect his own staff of teachers, without the interference of any medical committee. In such a case, for mechanics he would have chosen a man like Lennox, who was a great dentist, though he had not even a dental degree. He wanted to elect men to his school who knew most about their subjects, irrespective of any degrees they might hold. With regard to the question of carving, if a student was asked to carve a tooth and he did it in the normal size, the difficulty was to bring home to him the idea of form. Consequently at the Institute of Dental Technology the student was taught to make a giant tooth in clay, which would show whether he appreciated the teaching as to the number of cusps and the nature of the surfaces. One of the students, who afterwards became a teacher, on having the clay models mentioned to him burst into laughter, and on enquiry as to why he smiled so, he said he had been set to model teeth in clay without being first shown how to model in clay at all. In the establishment of a school the student should be taught to model in clay, and taught to model things which had nothing whatever to do with dentistry, in order to learn the use of the material. Then when he had a dental problem he was not doomed to failure, because he was already acquainted with the material in which he had to work. He could be taught ornamental bent iron work, something of a recreative, intelligent, artistic, and interesting nature, and then put on to the useful and applied. That was the underlying basis of the whole principle of the Institute of Dental Technology, and it had failed. It had failed not because of the merits of the school itself—in France they had added a year to the curriculum in consequence of the demonstration he had given there. but in England he lived in an environment of a different character. He had succeeded in tapping a fund which was at the disposal and under the control of the Technical Education Board of London, but when he turned that tap on he found that there were men in his profession who stopped the flow of the money, and prevented the work going on. Even when the instruction was given for nothing the difficulty was to find men to come in and benefit by it. There was the failure of the mechanics to understand the possibilities and the advantages to be gained by educating themselves, but the greatest and most distressful failure was the fact that men in the profession denounced the work as useless and a waste of time. It might be the last time he would have an opportunity of talking on the subject before the society, and if he had done so a little feelingly and strongly the members would forgive him. It represented £ s d, and he was four figures in pounds sterling out of pocket. and without success. However. the seed had been sown, and in a great cause somebody had to suffer. and he had suffered. He welcomed the paper, but he did think that a paper written on that subject, and by a man who practically lived next door to him, might contain a little tribute of appreciation which he might wear as a laurel wreath.

Dr. W. Mitchell,

In reply, said he had listened with great interest to the remarks that had been made. His main view in presenting the subject was to start people thinking of a matter in which apparently so little had been done in the way of careful thought and study. He thanked Dr.

Jenkins for the kindly way in which he had spoken, and he also felt pretty comfortable in having drawn Dr. Cunningham into the very position he wanted to find him, with the view of giving him an opportunity of saying something in regard to Dr. Cunningham's Institution. He knew that the doctor was going to be present, and that it was a subject he thought more strongly upon than any other man in the room, and possibly more than any other man in the world. He knew something about the beginning of that institution, and that something would be heard from Cambridge, and he was very glad Dr. Cunningham had spoken out as he had. At one time he (Dr. Mitchell) was supposed to occupy an honorary position on his staff. He knew the work Dr. Cunningham had done, and the modified success he had met with. It had not been from the unworthiness of his institution, but the crass stupidity of people who were unable to appreciate what he had been trying to do for them. He had lived in the same community that Dr. Cunningham had lived in, and he knew the difficulty of introducing a new idea without a surgical operation. He regretted exceedingly to know that the institution would probably have to go down only as an historical fact. Others, probably, would arise on its ashes, so that the founder of it would not be forgotten in years to come. He was quite sure, as the pioneer institution of a higher class of dental mechanics and prosthesis based on scientific principles, the institute would occupy a unique position in the dental history of the world. He left the matter out of his paper with the view of giving Dr. Cunningham an opportunity of raising the question, and by that means the members had obtained information with regard to the institution which they would not otherwise have had before them. In thus drawing Dr. Cunningham, his paper had succeeded in its mission and he was well repaid for any little time he had taken in presenting the paper to the society.

CHICAGO DENTAL SOCIETY.

Meeting held May 3, 1904.

DISCUSSION OF DR. BARTLETT'S PAPER, "THE PHILOSOPHY OF ADHESION OF VULCANITE TO METALLIC BASES."

DR. HUGO FRANZ:

Mr. President and Members of the Chicago Dental Society: I hardly know why your worthy president should have selected me to discuss this paper, the subject of which is certainly not nearly as familiar to me as he must have fancied. I confess that in a practical way I have given a great deal of attention to metallic bases, and that I also try to handle my vulcanite with the utmost consideration, but to the philosophy of their union in the sense of the essayist, I have never risen.

In case of metallic bases with rubber attachment I want a base which in itself will absolutely stand all possible strains occasioned in the mouth of a patient. It must also be a metal full of life—if I may be permitted to express myself thus—and not a dead substance like aluminium, with no elasticity whatever. All metals of this latter class will fail in connection with vulcanite on account of the disparity in the physical properties of the two substances referred to.

The essayist's experiments in regard to 18-carat gold are most interesting and full of practical suggestion. One hundred and forty pounds are a good average force brought to bear on any artificial contrivance in the mouth. Personally I have never used the 18-carat gold base. It has been my practice to use 20-carat gold, though the intrinsic elasticity and rigidity of this metal even in plate of 26 gauge from practical observation did not appeal to me as being sufficient to forestall failures, and it has been customary with me to rather use two plates of 30 or 32 gauge, soldering them together. Carefully attached loops and proper wiring of base are indispensable, and I am glad to have the essayist put special stress on this mode of procedure.

In soldering wire rim to plate I use 16-carat solder. If there is any philosophy in this I did not know it. I do it for convenience sake, as I do not run so much risk of burning the base.

The phenomenon of the vulcanite leaving the base in old plates constructed most carefully is familiar to us all. The essayist does not pretend to give the reason for this at present.

Perhaps a sincere plea for the much abused vulcanite in connection with the discussion of this paper is somewhat untimely. Nevertheless I want to say that the average practitioner ought to give more attention to proper flasking, packing and vulcanizing. This part of the work is slighted only too often and results are necessarily bad. Thus, many operators have acquired the habit of throwing slurs at vulcanite, a substance which in reality, if properly treated, has been a blessing to the less fortunate part of our clientele who can not afford to pay the price for the necessarily more expensive metal work. For this worthy reason it is most essential that everyone of us develop that amount of interest in vulcanite which alone will insure success

In closing let me say that to my mind the essayist's paper is full of practical suggestions, and I am glad Dr. Bartlett came this way to enlighten us, and probably show us a way to better things. I hope he will continue his researches and give us further results at some future time.

Dr. E. J. Perry:

The philosophy of the adhesion of vulcanite to rubber plates is very well explained, but it has no practical significance. I do not use 18-carat gold for the base of a set of teeth, hence it is of little consequence to me that the adhesion amounts to 140 pounds. It is conceded that we must resort to loops and to spurring of the plate in order to retain the rubber upon the base. I never use silver and vulcanite because it is well known, as the essayist says, that the sulphur in the rubber will attack the silver, and the silver plate will not be there when you open the vulcanizer.

I do not think that it ever occurred to anybody to depend upon the adhesion of rubber to any base to retain it there. That question is not in dispute. I do not think that it has ever been maintained that there is any adhesion between polished platinum or 22-carat gold, even when the metals are roughened slightly; nor that the adhesion would be of sufficient strength to be relied upon to hold the base to the rubber in a set of teeth. Even in continuous gum work, where the porcelain is fused upon the base, it is the custom of many operators to scratch or spur the plate.

But the essayist makes his point. He gives us, as far as he can, the philosophy of the adhesion of rubber to metal bases. Still, I can not see the value of it to me as a dental practitioner. He has done a lot of work; he has made some careful experiments, and he is entitled to great credit for that. It seems to me that the same amount of scientific work and care and thought that have characterized his labors in this field, directed toward some more practical subject would be of immense practical value to us.

Dr. W. H. Taggart:

The subject of the paper is one in which I have never taken enough interest to make any investigations in that direction. But I feel that the paper has done more good than Dr. Perry is willing to admit, because oftentimes we learn and profit as much by knowing what not to do as what and how to do it. Many plates have come under my observation where dentists have relied on the adhesion of vulcanite to metal. They did not take the trouble to put on loops and spurs and wires, but relied on the fact that there was some adhesion between the two substances. The fact proven by Dr. Bartlett that there is only one metal that has any adhesive properties, shows that we ought not to rely on the adhesion, and from that standpoint the paper is of incalculable value.

I wish Dr. Bartlett would tell us the best way of making loops and attaching them to the plate. I have never yet found a satisfactory way of attaching loops. If you put on a spur you many get a good attachment, but, as a rule, it is a hard thing to do. Dr. Bartlett has given this subject some thought and it would be interesting to have him explain how he attaches loops to plates, and how he would spur to get attachment which he does not get in the adhesion of the vulcanite to the metal.

Dr. A. E. Matteson:

I would like to ask Dr. Bartlett if he had annealed in alcohol previous to vulcanizing any of these metal disks, if not, I would like to learn the results of such treatment, using the same tests as made in those given in his paper this evening. I am satisfied that he would have to revise his tables at least as regards 20 carat gold.

In attaching rubber to 20-carat gold after such annealing the attachment is so great that it is necessary to cover such portions of the plate with plaster wherever the rubber is not desired.

This annealing should take place *immediately* before packing, this of course necessitates the removal of the plate from the flask.

In flasking an upper the labial-buccal rim should be on a line or slightly below the edge of the flask, the plaster covering the lingual surface of the plate to the wire or line where the rubber is to be. Before the plaster has hardened cut nearly through the plaster the outlines of the palatal outline of the plate, and complete the flasking as usual. On opening the flask and removing the wax, the plate can be removed carrying with it the plaster covering, which is replaced after annealing and before packing.

Regarding attachments, I do not use looped wire. When other than spurring is required I make use of studs or double-headed pins and their position is determined by drilling through the wax—after the teeth are in position—between the pins to the plate, uniting with 18-carat solder.

I would not depend upon the union of the rubber and gold with simply spurring, in partial plates or where there was a large amount of rubber, as the shrinkage would be in proportion to the bulk and would in time separate.

Dr. C. N. Thompson:

Dr. Bartlett has found something that I have wanted ever since I saw the difficulty connected with rubber and plate separating. I am very glad to know that 18-carat plate and rubber will unite in such a way that the secretions of the mouth will be kept out. That has always been one of the bugbears with a metal plate. To put on loops will prevent the rubber from coming away, but it does not prevent the mouth secretions from going in and fermenting. If the 18-carat plate will hold better than the 20 carat, I will use it after this.

Some time ago I found that pink rubber would attach itself to a metal base more securely than will either red or black rubber. I have, since that time, used it altogether, and it separates but seldom, especially when studs or loops are used.

That the introduction of vulcanite was a detriment to our metal plate work, is true. The skill necessary to make plates of metal, however, is something that will grow with practice, and the more that is required of us, the more efficient we become.

The vulcanite plate on the whole has been a great boon to the poor people, and the only reason why we don't respect it more is because we, as a rule, do not know how to utilize it for the best that is in it.

Dr. J. Q. Byram. Indianapolis, Ind.:

I wish to congratulate the essayist on his excellent work. Any man who takes hold of a subject and goes to the bottom of it, deserves a great deal of praise. As Dr. Perry said, there is not much good in this, so far as its practical value is concerned, yet, as Dr. Taggart said, it tells us what not to do, and it is well for us to know that. We are all eager to tell about our successes, but how many of us are willing to tell about our failures? Yet, as a rule, we can learn more from our failures than from our successes, besides, others can profit from our failures.

I have always used the 20-carat gold for a base when attaching teeth with vulcanite. Although the 18-carat gold may give a better attachment, yet it is not always so good a base. We must rely on a mechanical attachment for the vulcanite. I wish Dr. Bartlett would tell us how he makes his attachment. Occasionally a plate will warp a little after it is rimmed and ready for the teeth. I would like to find something to overcome this. I am working on a scheme to get a better attachment, and after I have used it more, I will give it to you. It is a simple method of constructing a gold base, and it is cheap, so that more people can take advantage of it.

Dr. L. E. Arnold:

I hoped that some one would try to show one practical application of the principles set forth by the essayist. I do not know whether 20-carat gold is better than 18, but as far as oxidizing goes, I have seen chemically pure gold filings turn as black as any plate. If 18-carat gold will give me better adhesion than the 20 carat, I will use it.

Dr. A. E. Matteson:

One reason why I invest the plate before I dip it into the alcohol is that it will not be warped by the sudden heating and cooling.

Dr. George W. Cook:

I wish to compliment the essayist on his excellent paper. Of course, there are not many men who are interested in scientific work, but if we expect to make any progress in dentistry, we must do scientific work. Although Dr. Bartlett's work may not have any practical value, yet it demonstrates some very important scientific facts that are bound to do the profession good some time. Few men know the constituents of vulcanite, and few know how to tell the difference between good vulcanite rubber and bad vulcanite. These things are not well known, and it requires scientific work to explain them.

The principal reason for the contraction and adhesion of rubber on metal bases, is to be found in the action of the fluids of the mouth.

In some mouths there is considerable contraction or warping of the vulcanite on the metal base. Is that due to the changing of the rubber, the changing of the metal, or to some condition of the mouth fluids? Those things must be worked out. and only scientific work will do it for us.

The society is fortunate in having Dr. Bartlett come before it and read such a valuable paper, and I for one want to thank the doctor. I hope he will continue this work because it is bound to lead up to something of great value to us.

Dr. G. W. Haskins:

I object to soldering together plates to stiffen them. A plate that is so constructed has lost all its elasticity; when bent it stays bent. It is better to have one plate of sufficient thickness to give the stability required, than to solder two plates together. I do not object to the use of 18-carat gold in the mouth. I use it a great deal, especially in the lower teeth. There is one great objection to the use of a higher grade gold—it is softer, more easily adapted to the mouth, and consequently can not bear the strain in the mouth so well. For partial plates I frequently use the alloy of gold and platinum called clasp metal. If rubber adheres to 18-carat gold, so much the better; that is the gold to use and not the higher grade.

Dr. Bartlett (closing the discussion):

In Dr. Franz' discusion he dwells on two points: The use of 16 carat gold for soldering. and the reasons of the vulcanite leaving the base. I want you to bear in mind that I made no mention of the fact that after we leave the 18-carat value in gold and decrease, the attachment lessens. It requires something like 30-pounds-pressure to produce displacement. That is one of the other remarkable phenomena of these experiments. There are many things in this line of work that I am doing that I am not at present ready to explain. At some future time I may go into this subject more deeply.

Why does vulcanite leave the base? We know by practical experiment that it requires 140-pounds' pressure to displace a disk three-quarters of an inch in diameter from a rubber surface. We also know that the vulcanite changes in the course of time, but what brings about the change? It is the further vulcanization of the mass. After the vulcanite has been taken from the flask it does not cease vulcanizing. When placed in the mouth the heat of the mouth in time is sufficient to produce further vulcanization, leaving the vulcanite in a more carbonous state, eliminating more hydrogen from the mass, producing a contraction that is great enough to displace it from the base. I am theorizing in this matter, but personally, I am convinced that these changes are due to further vulcanization.

In answer to Dr. Perry, I do not wish to be understood as giving this for any practical value. All I wished to do is to show you why vulcanite adheres to certain metals. And I do not wish to be placed in the position of having to reply in answer to the question, "why does it adhere?" I do not know. As a teacher I am supposed to know what I teach, and, hence, I was not satisfied until I knew more about this matter. If someone had asked Dr. Perry why does vulcanite adhere to some metallic bases, he would have said, "because it does." We are supposed to be scientific and we should not do anything unless we know what we are doing.

If one objects to an 18-carat base he can use the 20-carat, and at the site of attachment use a lamina of 18-carat about 32 gauge, thereby obtaining a better adhesion between vulcanite and metal. The objections raised to the loss of elasticity in the metal base when a second lamina is used in combination dentures will not hold, because that portion of the base covered by vulcanite is lacking in elasticity.

The reason why rubber adheres better to a metal base after the base is annealed in alcohol, is because alcohol is one of the best annealing fluids we have, and it cleanses the surface of all grease, rendering the contact absolutely pure and clean.

How do I make my loops? I suppose I make them like everybody else. I use a wire, bending it over, forming a loop, grasping it firmly in flat-nosed pliers: file down until the ends are flat. This loop will stand on a flat surface and all that is necessary to keep the loop in position is to first heat the metal base plate, then dip the ends of the loop into a cream of borax and hold against the heated base plate with a pair of pliers. The heat from the metal base will fuse the borax which will cement the loop firmly in position. When this has been accomplished the solder is applied and fused without danger of the loop falling from its fixed position. When using a spud the same methods are employed, or the solder can first be fused to the base and the spud placed quickly in position. It depends upon the amount of stress that will be brought to bear on the teeth during the masticatory effort as to where I place the loops or spuds. If great, I place the spud or loop wherever I can, but well into the rubber so that it may be out of sight in the finishing of the denture. Ordinarily I place the greatest number of loops on the posterior portion. We know that the anterior segment will not allow the placing of many loops or spuds in the majority of cases, owing to the fact that usually we try to reproduce the anatomical curve of the arch. I always make my loops of 18-carat gold, because I find that it gives me better attachment. I have often noticed that when platinum is used for loops or posts, after the plate has been worn for some time, and contraction has taken place in the vulcanite, that the contraction extends to the sides of the loops and at the finish or flush margins of the base. For that reason I do not use platinum pins for loops.

The tendency for a plate to warp I attribute to negligence in the soldering of the loop. If that base is thoroughly supported at every side, and care taken in the gradual heating of the base, I dare say that warping will be very slow. Sometimes we have warpage from the fact that we have pounded the plate to death between the die and counter die. If subjected to heat during the process of soldering the pins, the change in the position of the molecules, brought about by pressure, will produce a warpage of the plate.

After vulcanization against aluminum there is absolutely no adhesion. The metal magnalium is an alloy of magnesium and aluminum and is used in Europe extensively in place of aluminum. There is a slight adhesion. It takes hand pressure to part it, but it will not stand a pound weight. Here is a chance for some good work by scientific men, men who are not opposed to going deeply into the scientific side of the profession. Magnalium deserves further investigation. It is light and ductile and has the strength of aluminum.

Dr. A. E. Matteson

Read a paper on "A Few Points on Prosthesis."

DISCUSSION.

Dr. E. M. S. Fernandez:

To discuss Dr. Matteson's paper properly it would require more time than has been given me, as I have had the paper only a few hours and could not in that time even grasp all its interesting methods.

The method he advocates of retaining the plaster impression, trimming and using it, to obtain a good occlusion, seems a good and useful one.

That a good impression is a very important step in the manufacture of a denture of any kind is very true, and I believe we all agree with him.

We used to consider "plaster of Paris" the only material that would give a good impression, but I believe that some of the new impression materials will also give us excellent results if manipulated properly.

In regard to the importance of studying the environments, so as to retain harmony and beauty in shapes and colors, I would say, that it certainly is a deep and important study in prosthetic dentistry.

Making a temporary plate of gutta percha is a very useful practice, and I would like to recommend a new base plate preparation, which seems to be still better adapted for the same purpose as gutta percha, but can not recollect the name at present. It is sold by the Consolidated Manufacturing Company.

Dr. Matteson's paper reminds me forcibly of those happy old times we used to have in our dental society meetings twenty years ago, and I hereby compliment him for his constant sincerity.

DR. HUGO FRANZ:

In taking a bite I request my patient to press tip of tongue tightly against posterior border of trial plate, impressing upon him the importance of keeping the mind on this procedure. After that I ask him to close the jaws. The resultant bite is almost always correct. I received the above suggestion from a note in one of the German journals some time ago.

DR. BARTLETT:

There is one little point which Dr. Matteson brings out, that is, the method of securing the occlusion. It is quite an ingenious method if we can always preserve the impression intact. It gives something hard to meet the opposing force. At the same time we can utilize this impression by trimming its base in such a way as to carry out the line of contour or restoration of the parts lost instead of building out with wax. It gives us a firm surface on which the teeth come together in the act of occlusion. I shall use this whenever the opportunity presents itself. I am always willing to take pointers on that operation. The securing of perfect occlusion of the edentulous jaws, getting the ridges in proper relation to each other, to me is always difficult.

As regards his method of constructing the vulcanite denture, he said that method originated with Dr. Patterson, of Kansas City. That is not correct. That method has been in use in England for some years; but it is such a slipshod way of making a denture that I have never had the courage to attempt it. I would feel better satisfied by forming my denture on a model secured from a good impression than I would if made after the method advocated by Dr. Matteson.

His little device is ingenious and, in some cases, can be used to great advantage. His method of replacing the anterior teeth by posterior attachment has been a hobby of mine for some time, and if you will remember I showed in a clinic of the Odontographic Society just such an appliance; a lost central incisor replaced by swinging it to the second bicuspid. But my method differs a little from Dr. Matteson's. It is not new; the principles involved are old. After I have constructed my crowns for anchorage, either made of porcelain or shell crowns, I use a piece of platinum of about 38 or 39 gauge. If a case such as that mentioned, I use two pieces of platinum, reaching from the bicuspid on both sides to the edentulous space. I burnish the platinum to the model. I then fuse over the lingual surface platinized gold, getting a good surface first before fusing the gold, painting the palatal surface with a solution of alcohol and chalk. After I have fused the gold over the lingual surface of the bars, I shape them with a file so as to offer the least obstruction to the movements of the tongue. I place the bars quite a distance from the surface of the teeth lingually, so that the surface always can be kept clean. At the edentulous space I bring it well up, getting some pressure there with the bars. I wax the bars to crowns, take off, invert and solder. That gives me the bars in position. They are placed back in the mouth. I take an impression, secure models, place the teeth in their proper position, invert and finish.

I use platinum because it is not affected by the secretions of the mouth, no matter what mouth it is put into, and as long as we have a clean surface we need not fear soreness nor inflammation beneath the appliance, provided, of course, that the adaptation is perfect. By using thin platinum I get perfect adaptation.

I first began to use this method about seven years ago, and the first restoration I made was a right central incisor with an attachment to the second bicuspid. That work is still in the mouth and has never given the possessor the slightest inconvenience or discomfort. About two months later I replaced the central and lateral, the anchorage from the first bicuspid on one side and the second bicuspid on the other. The first bicuspid had been carrying a crown. After five years the patient fractured one of the facings of the teeth, but otherwise he had no discomfort. I took off the appliance and I could not see any line of demarkation where the appliance was resting on the tissue. There was no lodgment of food beneath the bars. The bar was about one-quarter of an inch in size. I make the bars in accordance with the degree of stress to be applied to the teeth and the condition of the tissues. Where it is dense, I make the bars small. Where the tissue is soggy, I make the bars a little wider. Now I replace all anterior teeth nearly in that manner, and I have never received any complaints; no trouble; no displacement. We are not justified in sacrificing one of the anterior teeth to carry an artificial tooth. Posteriorly we can replace the teeth very nicely, but when it comes to the anterior teeth it demands the skill of an artist to replace one of those teeth to perfection. When we replace an anterior tooth by getting support from the back of the mouth it is very difficult to detect the substitute if we have done our work well.

Dr. Matteson, closing the discussion:

I supposed that Dr. Patterson was the originator of the method I described, and, therefore, I always gave him credit for it. I thank you for your attention and discusion of my paper.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held May 16, 1904, with the President, Dr. J. P. Buckley, in the chair.

Dr. C. E. Jones read a paper entitled, "The Acquisition of Culture by the Professional Gentlemen."

DISCUSSION.

Dr. C. E. Bentley:

Instead of accepting an apology from Dr. Jones for having read such an excellent paper on a subject so pregnant with interest, it is quite necessary that we should congratulate him for having read it to us, because we are all the better after having heard it. It is well occasionally that such papers should be read upon the subject of culture for dentists.

If there is any one thing (and I say this even at the risk of being misunderstood) we as a group of men need it is the broadening and deepening of culture, in order that we may be considered self-cultured and professional men. I trust you will not misunderstand the sentiment contained therein.

But it seems to me the crux of the paper, as I read it over, was contained in one of its opening sentences. The essayist said, "It is the personnel of a profession that determines its relative position in social, political and professional life." If we have a group of men who are low in their degree of culture, who have been pinned down to a sort of microscopic horizon, who look only beyond a certain elevation, that group of men will be so considered in their worth by the people with whom they come in contact. If, on the other hand, we have a group of men who are scientific in their grasp, who are broadened by literature, by art and by science, just in proportion will that group of men be considered of service to the society into which they are thrown. Therefore, I think the statement made by the essayist at the outset was well put.

Talleyrand once said, "If I am sick, I desire a medicine man to administer to me who knows a little of physic and a great deal of other things." The man who only knows how to do one little thing, and pins himself down to it, soon finds that he is unable to do very much of that one thing. All knowledge is relative, and in proportion as one has the power of application to apply his knowledge just in proportion is he the abler exponent of the thing he pretends to be an expert of, and therefore I think Talleyrand in his final analysis was probably correct.

That brings me to another phase of a question that is very much discussed among men in the dental profession, and particularly in our dental societies. As a rule, we have a group of what we call in our dental societies older practical and scientific men. Often a house is divided against itself, where the practical man would say to the scientific man that his practice is largely grounded on theory. The substance of the whole matter is that both are correct, but I am inclined to this view, that no fundamental principle in practice has any tenure in our curriculum until in these days it is scientifically worked out. I believe that all fundamental principles that apply to the practice of dentistry are grounded in scientific thought, and we have first got to have the dreamer or poet, if you will—that is, the forecaster of practical thought in the scientist. The scientist has to dig out the fundamental principles and indicate to us by digital or other mechanical means how these can be applied. In other words, no good, practical thought is of very much consequence unless it has been thoroughly worked out theoretically in a scientific manner. You know it was Michael Angelo who said at one time that if he could conceive in a piece of marble an ideal figure he could teach his hands to do the rest. While it may be an exaggerated figure of speech, nevertheless no practical thing in one's mind in art, in literature, or in anything else can exist in fact until it has existed in the mind and in theory. In other words, the thought must have existed previously in your mind. That brings me also to the subject of culture in dentistry.

I trust I may not be misunderstood when I say that the great army of dentists that constitute the dental profession of today is not made up of what we call trained minds. You do not need to go to college to have a trained mind, and many men who go to colleges do not come out with trained minds. That great system of education which we get in our colleges has for its motive the training of the mind. We, as dentists, are not trained to think logically, and it is to be hoped that greater emphasis will be placed upon this by the trained minds in the dental profession, that class of men who can reason from a premise to a conclusion, with its corrollaries; and if the editors of our dental journals should give us a consensus of opinion upon this utterance, in regard to the papers that come to them, I think it would bear me out in the assertion that dentists have not trained minds, as a class. Now, this training can be brought about in a great many ways.

Darwin was a man who had the advantages of a collegiate education. I suppose there are none in the realm of science who had greater training of the mind than he, who could reason through a maze of facts and select the meat out of a premise and reason to a logical conclusion. The great theory of evolution or of natural selection which he formulated out of a multitude of facts was the splendid analysis and exposition of a trained mind. Herbert Spencer, on the other hand, a man who had but very few advantages of education; a man who utterly ignored the system of education as it was in vogue at that time, and criticized the systems of education up to the time of his death, was also a giant in logical reasoning. He brought this out through his own endeavors, and it was upon the theories and facts that Darwin founded that formed the basis for Herbert Spencer's synthetic philosophy, which has astounded the world, and which stands today as the greatest accomplishment of any one mind.

As the essayist has said, one does not necessarily have to go through a formal or formidable curriculum to have a trained mind, but by the acquisition of culture, by the acquisition of self-teaching, by contact with superior minds, by the application of the things that we see every day we can acquire this culture, we can so train our minds to think logically, and we can become effective and potent factors in the social system with which we are identified.

In this connection I would like to impress upon dentists the necessity of doing something else than follow their own avocation. Besides dentistry as a profession I believe every dentist should have some vocation, something to do outside of the practice of dentistry, or the little bit of horizon of the oral cavity in which his whole life and thoughts are centered.

The question of civics, as referred to, is something that should appeal to every man. I think the political arena should appeal to us. If you can help to clarify the political atmosphere or muddy stream which may be flowing your way, you contribute to the civic uplifting of the community in which you live. You are doing nothing more nor less than you are entitled to do by reason of the fact that everyone should do something for the community in which he is living. I claim that every man should give to his community, to his ward, to his profession, something by reason of the fact that the ward, the party, the city, or the profession, has done so much for him. All of these things can be brought about by individual effort, but we must recognize that there must be some wholesome method adopted to produce an effective impression upon any large group of men. And right in this connection I do not think it is a digression to make this utterance with reference to a demand for higher education in the dental profession. I do not pretend to speak as an expert upon what the requirements should be with reference to the untrained in our dental colleges. There are men here who are better prepared, whose thoughts are of more service than mine on any such question; but as a layman upon such a subject, and looking at it from a layman's standpoint, I do believe, in spite of the four-year course that has been mapped out and adopted by the National Association of Dental Faculties, if the requirement that the applicant shall be a high school graduate or its equivalent were exacted it would be better than the one now adopted, which is a second year in the high school.

Educated men, as a rule, do not enter the dental profession. I have had the privilege of examining the rosters of three universities within the last six months, and each roster gave the graduation and the subsequent professions and callings that all of these gentlemen had gone into, and there was less than one per cent of them who had degrees that had entered dentistry as a profession. Educated men, who have gone through colleges, as a rule, do not go into the dental profession. I think this can be obviated in a measure by raising the standard of entrance to the dental profession by requiring of gentlemen who enter it that they shall have a high school diploma or its equivalent.

In closing, one of the most gratifying things to me is that this paper has been read by one of the younger men, and read before a society made up largely of young men, and one of the most suggestive thoughts of the paper and to us is that here is a gentleman who is a living embodiment of what he preaches, and this is a young man who brings this excellent message to us.

DR. C. N. JOHNSON:

I have been very much pleased with this paper, because it is along a line of thought that has engaged my attention ever since I became a member of the dental profession. Like Dr. Bentley, I am especially pleased that the paper has been presented by a young man, because I like to see the young men taking their places in the society work that we have to do in this city.

Dr. Bentley picked out the very items in the paper that I have jotted down, and he has covered them so fully that it is unnecessary for me to say very much. I want to refer, however, to one statement made in the paper, and which was quoted by Dr. Bentley, in which it was said that the personnel of a profession determines the status of that profession in society. We are judged always by the impression we make individually and collectively upon the people with whom we come in contact.

I was pleased with the criticism made in the paper of the dentist, or of any professional man, who will carry shop-talk into society. If there is anything that is degrading or deplorable, or shows a lack of culture, it is talking shop in social gatherings. If we meet people in a social way, occasionally they will bring up as the subject of conversation our profession, but it should be a studied effort on the part of every dentist when in society to keep away from talking about teeth. Not only that, the dentist should avoid talking too much about himself when he is at his chair with his patient. If he has accomplished anything in the world, either in his profession, or out of it; if he has done anything that has called attention to him, he should not let his patients know about it. I think we should make an impression upon people by our demeanor, by our attitude, by simply being gentlemen, and if we are all gentlemanly to patients, it will not take long for the public to recognize us as a cultured profession. A man does not need to have been highly educated to be a cultured man. Culture is something aside from book learning. Sometimes it is far aside from book learning.

There is another thing that seems to be important and essential in the rounding out of what is a truly cultured dentist, namely, that no man can be a cultured gentleman without being a clean gentleman. If he is going to be a cultured professional man, he must be clean not only physically and mentally, but, above everything else, he must be clean to the bottom of his heart morally. There is no place in a cultured profession for a man who is not clean physically, mentally and morally, and if there is one lesson I would preach to the young men in entering this profession, it is this. It is difficult for a man to be clean in one way without being clean in the other. He can seldom be clean morally and mentally unless he is clean physically.

I want the members of this Society to take this paper, when it is published, read it and study it. I want the younger members to do this especially. It is a subject dear to my heart, and I congratulate the young man who has presented to us this message. It will do more good in the ultimate accomplishment of well rounded-out gentlemen than a paper on filling teeth.

Dr. T. E. Powell:

I want to congratulate the author of the paper. The thought occurred to me during the reading of the paper: Show me a man's ideals and I will know what that man is; and right here we may apply that to the dental profession. Show me the professional ideals, and I will know what that profession amounts to, and we won't need to illustrate very much after we have shown what our ideals are.

Another thought which occurred to me was this: The thought of architecture. In the building of a house you must first lay the foundation well; you must erect a superstructure, and after that comes the beautifying of the structure. Culture, as applied to our profession, simply means beautifying of the profession after the foundation and the walls have been erected. Of course, first, we must be good men, and, secondly, good dentists. Thirdly, we should put on all the polish we can possibly hold. The polishing process is not the least important.

Heine, the German poet, in viewing a cathedral, shed tears, and his friend was surprised. He was asked why he wept, and Heine replied, "I weep because men are not building any more such structures." Why? Because the religious spirit was on the wane, and Heine in that remark brought to our view in a few words the decline of the religious spirit in Italy and in other parts of the world.

In Ruskin we find the expression, that if you show me the architecture of a nation, I will tell you what that nation is. Speaking a little further on the thought I uttered a few moments ago, gentlemen in the dental profession ought to pay more attention to the cultural side of their natures than they have. How to do that is a question. The majority of us who go into the dental profession have had only two years' technical training and a high school education. We have not had time to become cultured in the strict sense of that word; we have been busy with fundamentals. If we enter the dental profession with two years of technical training and a high school education, we have seen enough to give us a taste for the real thing, an inspiration to go farther, even after we have finished our dental course, and after that we have a year or two before we are busy men. Most of us have time, after we have finished our dental course, to take up the study of civics, the study of psychology, sociology, municipal issues, and many other things that will interest us all. If you are not interested in political economy, you will be interested in sociology. If you are not interested in sociology, you may be interested in some other questions which come before you, as in politics. There are a number of dentists who are quite interested in politics. If you are not interested in politics, you may take up painting. If you are not interested in painting, you may feel like taking up sculpture, religion, or make a study of comparative religions. All of these things greatly interest and broaden men. There is no subject known to man which, if followed diligently, will not broaden and be helpful to him, and the more we know of the allied professions and of the sciences, the better men we will be, the more we will be appreciated by those with whom we come in contact.

Of course, when we speak of culture, we refer to a thing that is not known to men ordinarily who labor with their hands exclusively. You know, it has been the idea all through the ages that gentlemen do not work with their hands. That was the ideal in the middle ages. It was the ideal during the Cavalier period of England, and the ideal first brought over to this country, and gentlemen prevailed in the Southern part of this country. The planters were gentlemen who did not labor with their hands. Whenever a person labored with his hands, he was not considered as a gentleman; he was not looked upon as a gentleman. But that idea is being gradually cast aside, and instead of it the democracy of this country has been producing the ideal that no gentleman is a gentleman unless he does labor. Now we are having the thing turned around. It does not make much difference how much money a man has, he is not looked upon with high regard unless he can do something. We have now come to the other extreme, and instead of looking upon a man who labors with his hands as not a gentleman, the man who does not labor with his hands is not considered a gentleman. We are considered quite respectable even though we do labor with our hands, and if we attend strictly to our own future we will be considered in the list of cultured gentlemen.

Dr. John E. Nyman:

It seems to me some of the speakers have confused the two thoughts—culture and education. I do not believe an educated man is necessarily a cultured man. I do not believe that necessarily a cultured man is a clear, sound thinker. I believe there are eminent men who would be called uneducated men, who have exhibited the highest sense of culture. It is inherent in them. Culture is very largely a matter of heredity and environment. There is no question but what modern educational methods surround men with environments which tend toward culture. To my mind culture is an appreciation of the finer and nobler things of life. To be cultured is to be in harmony with the finer and nobler things of life. For instance, a cultured man gets all the comfort and joy out of the beauties which Nature affords. He gets all the comfort and pleasure out of a beautiful sunset or a beautiful river, etc. Furthermore, this culture rarely has its practical value in a commercial sense. A man who is cultured has a certain appreciation of the harmonies of color, of form and of sound. In his office you will find there is not exhibited any very discordant note of color in the furnishings. On the walls hang pictures, evidences, as a rule, of appreciation of better things. These pictures excite admiration from patients instead of ridicule and derision. Furthermore, he shows culture in his dress, carrying to the patient the suggestion of years and years of preparation for his life-work, and because of these many years of preparation the patient feels that the value of that man's services is higher than it would be otherwise. It is always questionable whether one receives more valuable services from men who have spent many years in acquiring knowledge than from men who have picked it up in a few years.

I am sorry Dr. Bentley quoted Talleyrand. If Dr. Bentley were ill, I do not believe he would go to some physician who spent two-thirds of his time in politics and the other third in practicing medicine. I believe he would go to a specialist.

Dr. Bentley:

You will notice that Talleyrand said physic.

Dr. Nyman:

That makes no difference. Furthermore, Dr. Bentley ought to be ashamed to quote from Talleyrand in discussing a paper on culture, because he was one of the most monumental liars of all time. Acquired culture gives you far more comfort and joy in life than you would have without it; but it has its practical commercial value, too.

Dr. Elgin MaWhinney:

I rise because I want to compliment Dr. Jones on his excellent paper. I have known him for a long time. It is a pleasure to me to have listened to such a paper by him, and I pay this public tribute to his work. I want to correct an impression that Dr. Powell left, that is, that culture is polish. To be cultured is not to polish yourself on the outside. I think the picture he drew was entirely wrong. I think the process of becoming cultured is rather the idea of taking a person, like the baser metals, refining and dropping out the baser elements and bringing to the forefront and to prominence the pure gold. I like the idea, the thought of culture as being a refining process.

I have a little squib here which embodies something of the idea of culture. It is taken from George Eliot's "Middlemarch," and it is this: "By desiring what is perfectly good, even when we do not quite know what it is, and can not do what we would, we are part of a divine power against evil. We are using the skirts of light and making the struggle with darkness easier." That seems to me to present a sort of mental and heart side of culture.

Here is another thought which I have taken from Ruskin. I have used it on many occasions. I am very fond of Ruskin. I spent all this winter in my leisure hours in studying him. Here is his beautiful statement: "He only is advancing in life (and that is all we are looking toward) whose heart is getting softer, whose brain quicker, whose spirit is entering into living peace." I think that is the embodiment of culture.

It is not something we put on from the outside; it is not something to cover up anything; it is like the yeast that goes inside the life bread that drives out the dross and impurities and gives us a better outlook of things. We are better men and better citizens. We forget ourselves and merge ourselves into the common good of all.

Dr. T. E. Powell:

If I conveyed the impression that culture meant polish on the outside, I wish to correct it. Dr. MaWhinney simply looked at one picture, and that is the picture of architecture. We must all know that the outer aspect of a piece of architecture goes to the soul and heart of the people by the impression it conveys. A man can not have culture put on the outside; it must shine through the soul, and unless a man follows certain lines he will not get the shining through from the soul of this culture.

Dr. B. J. Cigrand:

I would like to add a word or two to this magnificent paper. I believe in encouraging the younger members of the profession to go on with such work. It is profitable for them and for us. I am glad the essayist spoke in the way he did when he said there is a divinity that enters into all these things. How often do we see the phrase, "There is a divinity that shapes our ends, rough hew them as we will." We are endeavoring to reach a goal; we are all seeking in a measure perfection. In nature we find we are all created with two impulses—the innate that God has given us, and the acquired which the men around us contribute to us, and it is a question as to which is the greater force. Dr. Bentley discussed that question years ago, and asked the question which is the greater force: The force that has been given you at birth, the environments that enter into your make-up, the inheritance given by our forefathers, or the living environment that is contributed by those who live around you and with you? It depends on ourselves mostly.

As regards education, it enters into culture. I agree most emphatically with Dr. Bentley that a four years' course will be a mockery if it does not include the one idea of raising the standard of education, and I believe if we take into our dental colleges high school graduates and give them three years of study of seven months each during the term, we will accomplish more than to take a two-year high-school boy and give him four years. We have something to build on. There is a foundation, and on it we can build a safe superstructure.

Culture aids in softening the heart, quickening the brain, making us more tolerant, making us feel the noble impulses of those around and about us, leading us nearer to the understanding of the divine order of things.

When Wolfe, the English general, was about to take Quebec, he was sailing down the river with his men expecting a great victory, and they asked him what was uppermost in his mind. He said he was thinking of a poem, and they asked him what it was, and he replied it was "Gray's Elegy in a Country Churchyard." They were surprised that a man on the eve of a great battle, with all his men about him, would think of a poem, and he concluded by saying, "Yes, I would rather have the fame of having written that poem than to lick the French tomorrow." That shows the culture of that gentleman.

It is not all education, as Drs. Bentley and Johnson have said; it is a finer sense of feeling, a nobleness of character. Culture does not consist of a knowledge of Latin, Greek, or Hebrew. It is in one's soul. And so we have other examples we might mention.

Gen. Nelson Miles was asked what he most desired in all this world. He replied, 'The companionship of a loving, loyal wife, and both of us out in the forest listening to the birds." Think of a man who fought Indians and rode, so to speak, in blood from morning until midnight having such an apparently ideal dream as that. It shows the real, the true character of Miles, who has in him the feeling to do something for humanity.

Inheritance or heredity is a peculiar thing. The Bach family exemplifies it. The Strauss family were born musicians. Speaking of the hereditary transmission of traits, John Adams, John Quincy Adams, and Francis Adams were not only born orators, but trained in eloquence, in harmony with Dalton's law. But this law has exceptions—pronounced ones. Again, when the nation needed a voice, it was Patrick Henry who inspired the people of Virginia with his eloquent, impressive speech, in which he said, "Give me liberty, or give me death." Here we have oratorical powers and obscurity in parentage.

The question arises: Have we any laws and principles governing heredity, principles to guide us and upon which we can rely, or are we still in the woods, so to speak, in this great and wonderful epoch, groping around for things to cling to? Dalton's laws have too many exceptions—and it seems Nature's plans too oft reward those of meager claims to ancestral cast.

I am glad Dr. Jones has read this paper. I compliment him on it, and I feel it a special pleasure to belong to any society that has such noble purposes as has the Odontographic Society of Chicago.

Dr. Jones, closing the discussion:

I wish to thank the gentlemen who have discussed my paper, and especially for the honor and compliments they have paid me.

With reference to the remarks of Dr. Bentley regarding Spencer and Darwin, I desire to say that Spencer was subtle, artful in that he could portray man in a character other than that which was a true depiction. His whole purpose was to aggrandize that character. This he accomplished sometimes at the sacrifice of noble man and at other times at the expense of the simplicity of his audiences. Darwin was never subtle, nor did he care to portray other than the true status of man. He delved close to nature and nature's escutcheon hid nothing from his keen perception, nor did it embellish nature or man more than Darwin could perceive.

Carlyle would build a hero with the same artful tact that Spencer displayed in his depiction of man. But Ruskin, the material dreamer, would first familiarize himself with the character of the tree before he passed judgment upon the fragrance or beauty of the branch. With his consideration of the depth of nature he was able to take a character and paint it in direct harmony with nature. He never divorced character from nature, but made one equal of the other, and thereby displayed the co-ordination and harmony of our Creator.

Dr. Johnson spoke of the moral side of the professor. I want to call your attention in this connection to an English writer, who has recently passed away, the author of "The Light of Asia." There was a man of whom England never spoke for twenty years prior to his death because he lacked culture enough to control his moral traits. This man maintained an intellect far above the average man, but immorality ruined his sphere of usefulness to himself and to his country. He even placed his immorality as a stigma upon the profession in which he enjoyed membership.

The desecration of peoples and world powers has been caused by divergence from the moral code. It behooves us as members of the profession to guard well our moral conduct, because of the heritage we may be able to bequeath to our future profession.

We have a similar example of this English writer in our own Poe. Poe's immorality so impoverished the good of his literary work that his degraded personal characteristics had to be forgotten before the beauty of his classics could be accepted by his own countrymen. It is only recently that a complete list of Poe's works has been published. We are now looking upon his "Raven" as a masterpiece, eighty years after its origin and its author shrouded in oblivion, when he should have lived emblazoned in our memory, as are the productions of his pen.

Poe's degraded disposition was not the product of an ingrate or a degenerate. He lacked the one wholesome characteristic—culture; without that, he has come to us an outcast. But I might speak of many writers of olden times who were devoid of culture. Dumas portrayed the passion of France as it lived in him. Shakespeare's momentary digression from the moral code caused him to write the "Rape of Lucreece." I want to emphasize the fact that their lives were not substantially controlled by culture, or these classical productions would never have been created with such base promptings.

Dr. Cigrand's remarks called to my mind the cultured instincts of Napoleon. In reading the life of Josephine after she had married Napoleon this beautiful trait of this true soldier became visible in the fact that he never allowed a day to pass over his head without writing to his Josephine. Even when divorced from her that Corsican wrote the daily epistle, whether on the battlefield or in prison. This spirit truly shows that Napoleon possessed the finer instincts of man, termed culture.

I want to say a few words more about culture before closing. It is not external polish. Dr. Powell did not mean to express it as such. Culture is the innate qualification man has the privilege of possessing and unfolding, as I stated in my paper, as the fern does from within outward. Culture is the method of unfolding these finer instincts of man.

In viewing the men whose lives have become history, I desire to turn to the album of our own profession and view but briefly the life of Dr. Swain, whose whole life hangs suspended before us, by his untimely death. In speaking of Dr. Swain, I do so with all reverence, recognizing, as a young man in the profession, the enormity of the heritage we have come into possession of through the great worth of Dr. Swain to my profession. His technical skill has not commemorated his sterling life to my generation. But he has caused to be raised among the younger men, a monument upon which reads the simple inscription—"Culture." That one qualification alone will cause his memory to live with us always.

In closing I desire to advise you to read Ruskin. He will portray the individual man, as created by God and divined by nature. I know that the inspiration that has caused myself and others to look beyond our daily circumscription will better and broaden your sphere of life by endowing you with culture.

Dr. Fred W. Parker read a paper entitled 'Mastication—What it is; What it Does; Its Purposes and the Results; the Causes and Effects of Poor Mastication; the Remedy for Poor Mastication."

DISCUSSION.

Dr. Fred B. Noyes:

As the hour is late, I shall occupy only a few minutes to emphasize one or two points mentioned in the paper.

The essayist emphasized the fact that one of the essential factors in the development of the jaws is the use of the muscles of the jaw; that these muscles exert an influence upon the size of the bone. We know that is true of the muscles in other parts of the body. The pull of the muscles upon the periosteum covering bone exerts an influence upon the blood supply; it exerts an influence upon the direction of growth of bone, and as a result there may be a modification in size and shape of the bones. There are other factors in connection with this problem, but doubtless that is an essential factor, and perhaps one which orthodontists have not considered as much as they should.

I desire to emphasize the importance of the use of the teeth in mastication, as a means of cleaning them. We may advise our patients to clean their teeth with brushes, but the original way, the natural way of cleaning teeth is by grinding food over them, and the surfaces of the teeth which seldom decay are surfaces which are cleansed constantly by the friction of food. The mouths which become immune to decay are chiefly those which are used vigorously, and the worst mouths we have to deal with are the ones in which food is simply patted about and then swallowed. These are found especially in patients who are growing old. You can tell every time the character of the mastication by looking at the mouth. You can see that they never use their teeth with force, and those are the hardest cases for us to handle. The importance of training patients to use their teeth can not be too strongly emphasized. Ususually, the patient has gotten out of the habit of chewing because of some trouble in some of the teeth. There has been some cavity in some part of the mouth that was sensitive, and if food was caught in that cavity pain resulted, and the patient is unusually cautious about chewing on that side. After a while, there is probably a cavity on the other side, and a habit of patting food about the mouth to dodge these cavities is established and after the cavities are filled the habit will persist unless the patient breaks it up. Of course, there are differences in the amount of mastication required for different foods. Dr. Powell suggested to me in Peoria that the meats do not need the amount of grinding that the cereal foods do, and for that reason the cereal foods and bread crusts give the greatest amount of natural cleaning in the process of their mastication. Those are the foods which physiologically require the most perfect ensalivation. Meat is not acted upon by the saliva, and does not require mixing with saliva; it is swallowed more easily because of its characteristics. And the other foods, the starchy foods, require the continued action of the saliva for some time before they enter the stomach, because the action of the saliva is stopped by the gastric juice, and its action upon these starchy foods in digestion is very important. Its effect upon the teeth is quite important. There is nothing which counteracts that peculiar slimy covered condition of the teeth as readily as the vigorous use of the teeth themselves, and we find many patients in our practice who can be trained out of that imperfect masticatory condition by having their attention called, not only once or twice, but repeatedly, to it, and having it emphasized not only as a matter of importance as regards their teeth, but as an improvement of their general condition.

With reference to what has been said regarding children, I will say that children naturally take to the soft foods. I do not know why, but they do, and they need other foods not only for the sake of preserving their teeth and cleaning them, but for the purpose of aiding development. Mouth breathing may be largely counteracted by the development of the muscles of mastication, which in the time of sleep will keep the jaws closed, while weak muscles, which are never used in mastication, constantly relax during sleep, and the mouth is bound to drop open.

Dr. George W. Cook:

I feel that this is a very important paper, and one which deserves more discussion than it can possibly get at this late hour.

I am inclined to believe that the importance of perfect occlusion plays a great part in the mastication of food. On the other hand, we find people with well developed jaws and pretty well developed constitutions who have very poor occlusion. Why is that? Simply because in the early part of feeding the masticatory apparatus was such as to render it impossible to masticate the food, and the stomach and saliva had put upon themselves the obligation of properly preparing that food for nutrition. It depends very little from what source we get our nutrition, so long as we get it; and the development of the glandular structure of the oral cavity of the stomach and of the intestine is such that it can be developed as well as the jaws by use. There is an increase of gastric juice, and the pepsin is increased in accordance with the amount of material to be digested, and if we can have proper digestion in the stomach, and the alimentary tract is free from the fermentation processes of bacteria, we will certainly get very good assimilation whether the food be well masticated or not. However, the importance of training the young to do this should be emphasized. The difficulty in most cases in the young is not so much in the poor mastication of food as it is in the kind of food they take. There is a tendency all the time for sweet substances, and those things furnish pabulum for bacteria, and in that kind of nutrition are carried the microorganisms from the mouth into the stomach, and into the intestines, thereby setting up fermentation, producing so-called dyspeptic conditions, followed by malnutrition rather than malmastication.

The importance of proper directions as to what kind of food children should take can not be too forcibly emphasized. This is one of the most important problems in our civilization, namely, as to what food children shall have as a proper metabolism to the body. As I have said before, I believe that the time at which we have the best production of manhood and womanhood is before the mastication of food is very much taken up by the child. The time of building up the structure comes at an early period of life. The food that is taken previous to this time plays an important part in the production of the best physical being. Mastication, of course, is a process that is mechanical, and if it is acquired properly, then you will notice the jaws and teeth develop, they will go on to a more vigorous and more muscular condition, but if it does not, the body will adapt itself to certain conditions of nutrition if we can only keep the fermentation of certain of these foods down.

In connection with nutrition of the body, there are certain forms of microorganisms taken in with foodstuffs which break up the carbohydrates when they enter, and the carbohydrates that enter the small intestine are destroyed by bacteria before they can be utilized by the body. Proteid substances pass into the large intestines, are destroyed, and broken up in a manner that can not be assimilated, and consequently the greatest amount of food is interfered with in that way, resulting in malnutrition, which is so often found in the human race.

I wish to take issue with reference to a term used in the paper, and also made use of by Dr. Noyes, and that is slime on the teeth. I do not believe that such a word exists in the technical vocabulary. It is really mucus. There are variations of this mucus. Its adhesion depends not upon the use of the jaws so much, but upon the kind of mucus that is excreted by the follicles of the mucous membrane. This very largely depends upon the kind of substance that is put into the oral cavity. This mucus, when adherent to the teeth, plays an important part in retaining bacteria in these parts, and many times it is of such a nature that the constituents of the saliva are unable to break it up; it becomes adherent to certain parts of the teeth, and produces great havoc. Possibly it is the indirect cause of dental caries and of various lesions of the mucous membrane.

Dr. Parker (closing the discussion):

In reply to Dr. Cook's criticism as to the use of the word slime as descriptive of the condition of the mouth and teeth, I want to say that I have seen conditions of the mouth that looked more "slimey" to me than anything else. I think the word describes very accurately the condition observed in some of these cases.

In closing I want to read a clipping from the Saturday Evening Post, which reflects a thought along this line. It is entitled "Soft Food and Hard Facts," and is as follows:

"It may be true, as some scientists contend, that if most of us had no teeth, teeth would be regarded as unsightly. No doubt there was a time when the tailless branch of the primates that was one day to develop into man, was held in contempt and derision by the tailed branches of the family, and was even, at heart, not well pleased with itself. Still, as long as teeth are the fashion, we ought to be looking out more carefully for the teeth of the oncoming generation.

Soft food is playing the mischief with the teeth. Probably the medical profession, if it ever emerges from the spell of drugs, will discover that the same cause is at the root of the appalling increase in digestive derangements. Man is still an animal, and Nature still holds him accountable to her laws for the animal kingdom; and she laughs at the dentists and dosers."

THE FOURTH INTERNATIONAL DENTAL CONGRESS AND THE INTERNATIONAL DENTAL FEDERATION.

REPORTED BY R. C BROPHY, M. D., D. D. S., CHICAGO, ILL.

(Continued from page 912 September Number.)

A work of much importance was that of the National Association of Dental Examiners, at a series of meetings held during the general session of the Federation.

The examining boards of twenty-five states were represented, and Dr. James G. Reid, of Chicago, president of the National Association, presided.

The matters of greatest general interest considered by this Association were those pertaining to the time and preliminary requirements of the colleges, and interstate reciprocity in issuing licenses to practice dentistry.

A college course of study of twenty-eight months it was agreed and ruled by the association, should be required for graduation, but the number of years was not stipulated, so that colleges are left the option of covering the required number of months in three years or four years.

In the matter of preliminary educational requirements an important change was made in that hereafter four years of high school work, or its equivalent, will be demanded as a qualification for matriculation. This is an increase of one year's time over the Association's ruling of the previous annual meeting.

Reciprocal relations between the boards of the different states received an amount of attention that would indicate an awakening on the part of the national association to the importance of reciprocity.

Henceforth a man wishing to leave one state to engage in practice in another, and who can take with him a certificate as to qualification from the board of the state which he leaves—membership of the State Dental Society having been fixed as one of the qualifications—will find the way open.

To attempt to give an epitome of even the salient points in the program of essays and clinics of the Fourth International Dental Congress is a difficult matter, and it is not likely that a really adequate conception of the true character of the proceedings will be gained till the detailed report is finally published in an official manner.

It is only intended in the present report to select some of the more prominent ideas brought out by essayists and clinicians, and to deal with those things which seemed of the greatest scientific importance.

Section I, department "A," was opened by the chairman, Dr. M. H. Cryer. His address dealt with the scientific advancement of the profession in recent years. Dr. Aquilar of Madrid next read a paper on the use of "Somnoform" as a general anæsthetic, and describing the physiological action and clinical manifestations of general anæsthesia by this agent. A practical demonstration of its use was also given. Dr. J. E. Grevers, of Holland, read a paper entitled "Behavior of the Teeth Under Polarized Light."

In section II and section VI, department "A," papers were read which will prove of great interest and value in scientific advancement of the profession. For instance, in the former section an essay upon "Constitutional Causes of Tooth Decay, Erosion, Abrasion and Discoloration," was read by Dr. Eugene S. Talbot, of Chicago, and discussed by Drs. James Truman, W. D. Miller, of Berlin, and M. L. Rhein.

This paper, after first conceding to Dr. Miller the credit of original discovery of the local cause of decay of the teeth, goes on to indicate that back of all the cause may be traced to abnormal constitutional conditions. The teeth, and the face and jaws as well, the essayist argued, are modified by neurasthenia and faulty nutrition of one or both parents, or the child, or by all combined, and that the fermentation process affecting the lactic acid is, in many cases, assisted by vitiation of the secretions resultant from such abnormal conditions. As proof of the correctness of this theory it was suggested in the essay that comparison be made of the teeth of healthy children and those of similar ages in schools of degeneracy.

Another paper read in this section of much scientific interest was one by Dr. Louis Ottofy, of Manila, P. I., entitled "Observation on Causes of Erosion," Dr. G. W. Cook, W. D. Miller, M. L. Rhein, E. S. Talbot and R. H. Hofheinz joining in its discussion This paper presented arguments to show that erosion is the result of dietetic influence. In Japan, where the essayist had prosecuted investigation and study of the matter, it was claimed by him that methods adopted in growing certain food stuffs seemed to exert influences upon the teeth and surrounding tissues.

On the second day in the general session a paper entitled "Apropos of a Portrait of Pierre Fauchard," by George Viau, of Paris, France, was read by Dr. Truman W. Brophy. The paper was of the nature of a memorial accompanying the presentation of an oil portrait of the noted Fauchard by the National Dental Association of France to the National Dental Association of the United States. The author touched upon the life and works of Fauchard as the founder of modern dentistry in France in the first half of the eighteenth century. He then described the finding of the portrait in a garret in Paris, where it had lain for many years.

Following this paper, and its discussion, and the speech of acceptance by President Burkhart, a paper was read by Dr. John S. Marshall, chief of the U. S. Army dental corps, entitled "The Dental Corps of the United States Army."

The paper forcefully advocated greater exertion on the part of the government to provide for dental service in the army, that such service might more adequately meet the demands.

Dr. Louis Ottofy, of Manila, and others endorsed the recommendation of the esayist, and criticized the enforced practice of the army dental surgeons of using cheap methods of filling teeth for the sake of economy when more expensive fillings were demanded for best results. Dr. C. L. Hungerford expressed himself as supporting the government in its disposition to use the cheaper materials in the treatment of private soldiers, arguing that it is not reasonable to expect the government to fix up the teeth of a short term soldier so that they will remain in a state of repair for life. In the case of officers he thought it proper that the best service should be rendered, for they are attaches of the government for life.

In section I, department "A," Dr. M. H. Cryer read a paper upon "The Use of the Roentgen Rays in the Study of the Internal Anatomy of the Face."

This paper, which was profusely illustrated by lantern slides, pointed out the important uses to which these rays may be put, in conjunction with instrumentation, as a means of locating impacted teeth, and also of determining the presence of foreign substances in the cranial tissues.

The essayist also pointed out that by this means pathological conditions of the various sinuses may be determined, including the presence of pus.

Dr. Ottolenqui in discussing Dr. Cryer's paper congratulated the essayist upon the importance to the profession of the work which he had done along this line.

A joint meeting was held by sections II and VII at which Dr. W. D. Miller, of Berlin, read a paper illustrated with lantern slides, entitled "Researches Relating to Various Pathological Processes of the Teeth."

Dr. Miller presented a lengthy paper, only a portion of which was read, detailing a long series of experiments on the subject of Dental Caries, very much of which experimentation is entirely new.

This work of Dr. Miller had been directed more particularly to the question as to whether or not there are conditions in the tissues of the teeth, chemical or physical, other than known faults, such as pits, grooves, interglobular spaces. etc., that render one tooth more liable to decay than another, or the teeth of one person more liable to decay than those of another. under similar conditions. Dr. Miller's experimental work it was evident had been very ably conducted, and it was ably presented in the paper, and will serve as a fund of information for students in the years to come in the study of this subject.

Dr. Miller expressed himself as feeling that he has found some evidence that there are differences in the teeth that favor decay in the teeth of one person, while they do not favor it in others, though he regards the evidence which he has as being insufficient to prove the correctness of the theory.

This paper was accorded the first prize by the congress.

(*To be continued.*)

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE SOCIAL STATUS OF THE DENTIST.

In the August number of the *Dental Digest* there is an editorial calling attention to the fact that recently a man was excluded from membership in a fashionable New York club solely on the ground that he was a dentist. It was admitted by those who opposed his membership that he was in every way eligible personally, and that nothing but his calling kept him out.

One of the members most active in opposing the dentist in discussing the case subsequently is reported to have said that none of his friends would care to meet a dentist socially, and that he should never dream of inviting a dentist to his home. He admitted that it was blind prejudice which dictated all this, but stood firm in his opposition, at the same time intimating that the social status of the physician or surgeon was satisfactory. A noted Chinaman who had observed this peculiarity of American social life in searching for a cause was unable to find one except that a dentist was sometimes called upon to clean teeth, and that "no gentleman of culture and refinement would ever stoop to such work."

Let us dispassionately discuss this matter a moment and see if there are not two sides to it. In the first place we are not willing to admit that the social prejudice against dentists is anything nearly so general or widespread in this country as the New York incident would imply. It is true that dentistry as a profession is not so old as medicine or law and that its traditions have not assumed the dignity of the older callings nor made the same impress on the popular mind, and it is well that dentists should remember this and do all they can individually and collectively to raise the tone of the profession and add to its culture and standing. Every man owes this to his calling and we are willing to admit that there are many dentists who utterly fail to realize their obligations in this respect, and who do not lend either distinction or credit to their profession. But dentistry has by no means a monopoly of this kind of men. They are in every walk of life and woe betide the profession that is to be judged by them. That we need a general raising of the intellectual standard of our profession no one will deny, and we confidently believe that this is being brought about.

But to go back to the essential snobbery of drawing the social line on a man because he cleans a set of teeth. We are not one of those who claim that cleaning teeth is one of the highest expressions of artistic attainment, and yet there are few operations more useful and beneficial than this and what is useful and beneficial is not altogether degrading. Besides, if we look into the merits of the case, which should be the more acceptable member of society—the man who with steel instruments, properly sterilized, removes at arm's length the accumulations on the teeth, and who immediately washes his hands lest perchance any particle of these accumulations had reached his fingers; or the individual in whose *mouth* these accumulations had been allowed to remain for weeks or months or years?

There is many a society swell admitted to all circles with a mouth so illy kept that it would disgrace a Hottentot, and shall we say of the man who by his skill will make this mouth wholesome and presentable that he is thereby debarred from associating with refined people?

Physicians do dirtier things every day of their practice than dentists are ever called upon to do—but what is the use in discussing this feature of the case? It simply resolves itself back to the old idea of caste whereby a man who "does things" is debarred from the so-called higher circles of society. If this idea is to gain ground in this cosmopolitan and democratic age then all we have to say is that the ones to suffer most by its observance will not be the dentists.

In the meantime let us as a profession go on in a quiet and unostentatious way to the acquirement of a higher and broader culture, secure in the conviction that in proportion as we attain culture we shall receive due recognition by all those whose recognition is worth having.

THE EDITOR'S DESK.

MUSIC.

I had picked up my pencil tonight to write an article for the Desk, and had the topic outlined in my mind and was just about to write the first sentence when a few strains from the piano came floating into the room where I was. I sat and listened, and listened, and forgot all about the topic and was glad I forgot. What is there about music which so takes hold of one? I don't know a thing about music only to know that I enjoy it. I couldn't tell the difference between the key of G and a five-room flat, and yet I can sit by the hour and revel in music—that is, I could if I ever got the chance. Sitting by the hour is not the frequent prerogative of a busy dentist.

I do not suppose that this music I hear tonight is classic. It is being played by my little Indian girl—I call her my "little Indian girl" ever since she escaped from the Iroquois fire last winter—and she has not reached the classical age yet. I suppose there must be flaws in that music because she is rattling it off so carelessly and her fingers are taking so many hops and skips and jumps over the keys in a way that I am sure the composer never intended, and yet I would rather sit and listen to that music than dictate the destinies of an empire. Some one has said that music is the language of the angels. It is more than that—it is the universal medium of intercourse between the celestials and the terrestrials, between the heaven and the earth, between the infinite and the finite. It is the language in which the soul speaks to other souls, and in which the heart reaches out to all humanity.

And there is so much music in the world if we only listen for it. We do not need to get it from a piano, or violin, or harp. It is in the air everywhere, among the trees, with the birds, in the grass, across the fields, over the waves, and even in the darkest solitude of the forest. It plays on all moods of the human mind from the deepest despondency to the highest elation, it carries one from the grave to the gay, from the sublime to the frivolous, from repose to ecstacy. It inspires men to deeds of bravery on the field of battle, and subdues a turbulent passion into a tender sentiment.

Music is the great interpreter. Without the necessity of words it speaks to every human soul of every clime and even appeals to the beasts of the forest and the field. How proudly a horse will arch his neck and prance in his paces to the stirring music of a band. How dismally a dog will howl at a doleful melody. None can escape the witchery of the strains which float so vibrant on the air and yet are never seen. We should bring our children up to music. We should cultivate it in our homes and make it a feature of our everyday life. Music moves to better things and we are none the worse and much the better for a love of it.

REVIEWS AND ABSTRACTS.

Dunham's Normal Histology. A text-book on Normal Histology for the use of students and practitioners of medicine. By EDWARD K. DUNHAM, Ph. B., M. D., Professor of General Pathology, Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. New (3d) edition, revised and enlarged. In one octavo volume of 334 pages, with 260 illustrations. Cloth, $2.75, *net*. Lea Brothers & Co., Philadelphia and New York, 1904.

This most fascinating subject is presented to the student in this volume in a very attractive form. The general character of the work is worthy of all praise, one of the most commendable features of the book being the high order of the illustrations used. A section is devoted to the care and use of the microscope, and to the technique of histological study. While the work was evidently designed for medical students, yet the interest taken in this subject by dental students and the emphasis placed upon it in our higher grade dental colleges will make it a welcome addition to the library of every dental student and practitioner.

Essig & Koenig's Dental Metallurgy. A manual for the use of dental students and practitioners. By Charles J. Essig, M. D., D. D. S., formerly Professor of Mechanical Dentistry and Metallurgy in the Dental Department of the University of Pennsylvania, and Augustus Koenig, B. S., M. D., Demonstrator of Metallurgy in the Dental Department of the University of Pennsylvania, etc. New (5th) edition, revised and enlarged. In one 12mo. volume of 318 pages, with 76 engravings. Cloth, $2.00, net. Lea Brothers & Co., Philadelphia and New York, 1904.

This book has become a standard of its class for dental students and practitioners. It is so well known that an extended review is unnecessary except to say that the fifth edition has been amplified by the addition of thirty-two new cuts, and the entire work subjected to a most thorough revision.

PRACTICAL HINTS DEPARTMENT.

Edited by G. W. Johnson, D. D. S.

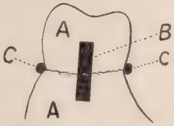
[This department is for busy readers. We want short articles containing practical ideas—the shorter tne better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, The Dental Review, 55 State street, Chicago, Ill.]

Talcum for the Hands of Operators:—Violet talcum powder in a small quantity is useful to dry the hands ofter washing and serves a double purpose of giving a pleasant odor to the hands and in winter helping to prevent the chapping due to frequent washing.—*Grafton Munroe, Springfield, Ill.*

Argyrol:—For inflamed gums try the crystals of argyrol. It is non-escharotic and is absorbed with exceeding rapidity into the tissues. A few crystals will soon color the entire mouth, but the stain is only temporary and the congested condition will be greatly improved after the application.—*E. D.*

An Interesting Item:—To prevent the adhesion of soft cement to instruments while operating, keep in a convenient place a small vessel, similar to the old-style salt cellar, filled with violet talcum powder. Occasionally insert the instrument in use into the powder and it will effectually prevent the adherence of the cement to the instrument. Any talcum powder will be found useful, but "Violet" is preferred on account of the pleasant odor. The same is applicable in working gutta percha.—*Grafton Munroe, Springfield, Ill.*

Repairing a Broken Plaster Cast:—To quickly repair a broken plaster model, drill a hole in each fragment so that the holes will come directly opposite each other when the fragments are in the correct relation. Fill the holes with cement, allowing enough for surplus. Place the fragments together and when the cement has set trim away surplus, if necessary. AA represents plaster model; B represents holes filled with cement; C C represents surplus cement which should be trimmed away.—*Homer Almon.*



To Clean a Handpiece Quickly:—Take a common glass tube—such as gold cylinders are contained in—and fit a good cork tightly into it. Keep a sufficient quantity of kerosene oil in the tube to cover the handpiece when placed in it. When the handpiece becomes sticky and the bearings rusted, plunge into the tube of oil and run the engine rapidly for a short time. A second bath will rarely be necessary to cleanse bearings and prepare it for a little suitable oil.—*H. Darling, Bay City, W. S., Mich.*

To Prevent Displacement of the Rubber Dam on Lower Molars and Bicuspids:—In applying the dam to lower molars and bringing it forward to the first bicuspid it is sometimes the case that the tendency of the lips is to force the dam from the teeth. In cases where the lips naturally fight the dam in this way, a secure method of holding the dam in place and out of the operator's way is to use a clamp, not only on the molar, but on the first bicuspid, reversing the clamp so that the bow looks forward instead of backward. This will at once simplify an otherwise complicated and annoying situation.—*B. D.*

Replacing Large Gold Fillings in Anterior Teeth:—Very often large contour gold fillings in anterior teeth become loose and easily removed without breaking the tooth to damage it to any extent. Usually a little gold is left in the cavity where undercuts or retaining grooves were made, but the bulky portion of the filling remains intact. To replace these fillings quickly, prepare the cavity and fit a matrix. If the pulp is dead, insert a pin in the canal and attach to the matrix. Solder the filling to the matrix with a high-grade solder, cement to place, and your patient's confidence is restored.

Investing Matrices for Gold Inlays:—Place a small amount of the freshly prepared investment compound on the surface of the matrix to be invested, and with an ordinary chip blower force the investment over the surface by carefully working the bulb. By the time the balance of the investment is prepared to receive the matrix the investment previously placed over its surface will have become hard enough to retain the form of the matrix while it is being forced down into the investment. By employing a chip blower the investment compound is forced over the surface of the matrix effectually and without danger of changing its form.

The Proper Use of Floss:—In giving instructions to patients in the use of floss silk for cleaning the proximal surfaces of teeth, caution them against allowing the strand to snap with too great force past the contact points and impinge violently against the gum in the interproximal space. This may in time injure the gum and cause its recession. Teach them also that in removing the floss from the interproximal space it should be drawn out bucally or lingually instead of lifting it occlusally. Drawing the thread laterally will produce better friction against the proximal surfaces of the teeth and dislodge particles of debris more perfectly than snapping it out occlusally.—*E. D.*

Preparing an Impression Tray for Plaster:—To prevent the plaster from flowing down the patient's throat when taking an impression, prepare the tray as follows: Puncture the impression tray near the heel, making several holes about a quarter of an inch in diameter. Build up the heel with wax to reach the palate, and from this carry a piece of sheet wax forward under the tray. When taking the impression the surplus plaster will be forced through the holes and carried forward by the sheet of wax under the tray, thus effectually protecting the throat. The same result may be attained by cutting a V-shaped piece from the rear of the tray and building with wax, as described above.—*F. W. Stephan, Chicago.*

Delicacy of Manipulation:—One of the most practical things that can be taught to young operators is the necessity for developing a delicate touch in their manipulations about the mouth. Patients are becoming more and more discriminating about such things, and they rebel against an operator who is unnecessarily rough. The mere examination of the teeth is frequently made a disagreeable, if not painful, procedure through the rude manner in which the lips are forced back and the mirror is jammed about the mouth. A little delicacy on the part of the operator, particularly at the beginning of any sitting, will help the patient wonderfully and inspire confidence. It will also be more highly appreciated than many operators realize.—*E. D.*

MEMORANDA.

RECENT PATENTS OF INTEREST TO DENTISTS.

765,537.	Dental duct appliance. Frank P. Abbott, New York, N. Y.
766,018.	Dental clamp. Houston M. Carroll, San Antonio, Tex.
765,919.	Dental impression cup. Charles L. Gibbs, Philadelphia, Pa.
766,586.	Apparatus for shaping metal parts in dental work. David N. Booth, New York.
766,591.	Dental chair. Frank E. Case, Canton, Ohio.
766,333.	Floss cabinet. Charles E. Emory, Pittsburg, Pa.
766,235.	Dental articulator. Arthur H. Fleming, Louisburg, N. C.
766,693.	Dental disk-cutter. James A. Hallett, Des Moines, Iowa.
766,247.	Tooth brush. Christian Heilrath, Sacramento, Cal.
767,553.	Dental trough. Percy Edgelow, London, England.
767,743.	Dental appliance. James D. Ford, Somerset, Ohio.
767,744.	Gold leaf condenser. James D. Ford, Somerset, Ohio.
767,705.	Attachment for dental engines. Isidor Lyman, Cleveland, Ohio.
767,852.	Dental matrix. Zeph. H. Tibbetts, Highland, Ill.
767,469.	Combined toothbrush and dentifrice receptacle. Arthur W. Ziegler and J. W. Slater, Berlin, Wis.
768,456.	Toothbrush rack. Genevieve Howard, Franklin, Mass.
768,697.	Dental appliance. Morris I. Schamberg, Philadelphia, Pa.
769,631.	Artificial tooth. Frank L. Priest, Dallas, Tex.
769,667.	Dental suction plate. Edgar C. Reed, Loudonville, Ohio.

769,426. Dentist's implement. Lewis H. Zeran, Rockford, Iowa.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

Dr. Alfred Burne, of Sydney, Australia, with his wife and daughter, made a short visit to America to attend the Congress. Dr Burne is one of the old reliables of the profession in New South Wales, and his American friends are always glad to see him. The only complaint we have to make this time is that his stay was too short.

This is the season when the city societies begin to hold their monthly meetings. Let the members see that these meetings are well attended and that the interest is maintained through the winter months. The local society is an important factor in the progress of the profession, and it should be kept up to the highest degree of excellence.

ARKANSAS STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Arkansas State Board of Dental Examiners will be held December 2 and 3, 1904, in Little Rock, Ark., for the examination of all applicants. Those having applied for examination will report to the secretary Friday morning, December 2, 1904, with rubber dam, gold, plastic filling material and instruments to demonstrate their skill in operative dentistry. Anyone who wishes may bring their patient. As far as possible patients will be furnished. The board reserves the right to select the cavity to be filled.

The examination will cover all branches of the dental profession. No temporary certificate will be issued to anyone. Examination fee, $5. For further information write the secretary. DR. A. T. MCMILLIN, Secretary.

OBITUARY.

DR. GEORGE H. CHANCE.

DIED—At Portland, Ore., on September 3, 1904, Dr. George H. Chance.

Dr. Chance was a well-known writer in the profession, having only recently sent out a small volume of poems, which received notice in our columns a few months ago. He was universally respected as a high-minded Christian gentleman. We can not do better than give the following account, copied from a Portland paper of September 4, 1904:

After suffering for four months from internal cancer, Dr. George H. Chance, a pioneer dentist, died yesterday at his home, 415 Second street, where he has lived for twenty-five years. He was born in England seventy-four years ago, and came to this country about the year 1850. The gold regions of California drew him to the Pacific coast, and about 1860 he settled in Salem and lived there until 1874, when he came to live in this city and has made it his home ever since. For a number of years he was a member of the official board of Taylor Street Methodist Episcopal church. He was also a thirty-third degree A. & A. S. R. Mason. As a dentist he had a large practice, and was very well-known and much respected. Dr. Chance left a widow and these children: Mrs. F. A. Kenny, Alameda, Cal.; Miss S. E. Chance, Miss W. E. Chance, Miss Aina B. Chance; Charles H. Chance, of Sumpter, and Dr. Arthur W. Chance.

THE

DENTAL REVIEW.

VOL. XVIII. CHICAGO, NOVEMBER 15, 1904. No. 11

THE MODERN DEVELOPMENTS IN ORTHODONTIA.*

BY ROBERT DUNCAN M'BRIDE, D. D. S., DRESDEN, GERMANY.

There has been such rapid advancement in the science of orthodontia during the past few years that a new era has been created in its history. It has now been placed upon a scientific foundation. Formerly in the correction of malocclusions of the teeth it was the chief object of the dentist to so arrange the anterior portion of the dental arches as to give an improved appearance to the front teeth and facial expression. He had no standard as to the perfection in the results attained. But now we have standards of perfection, and by the application of the recent developments in the manipulation of tooth movement we can do our work with a mathematical accuracy. Orthodontia is no longer a realm of chaos. It now possesses a dignity which characterizes it as a specialty and which gives it a claim in the field of art. The true practice of orthodontia has little to do with dentistry proper. It is a specialty and should be so considered. In dealing with the subject of the modern developments in orthodontia I shall try to make clear the following essential principles, upon the inteligent comprehension and application of which depend the possibilities of our success, viz., orthodontia in relation to art, the necessity of the presence of all the teeth, normal occlusion, diagnosis of malocclusions, the value of the first molars, and the mesio-distal shifting of the dental arches.

Our work is directly connected with the modifying of the lines and contour of the human face, and when an intelligent application of the principles of art accompany the practice of orthodontia the esthetic attainments produce a satisfaction and pleasure unequaled by few things in orthopedic surgery. Orthodontia and facial art can

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*Read before the American Dental Society of Europe.

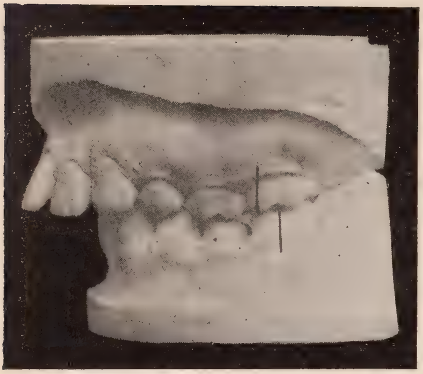


Fig. 1.

CASE I.

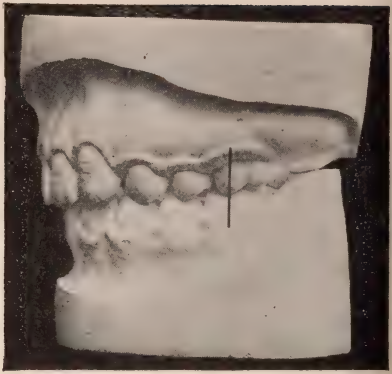


Fig. 2.

not be separated. A thorough knowledge of the latter is a necessary requisite to the success of the former. The orthodontist has to deal with the esthetic relations of the principal features of the human face, and by the application of the scientific principles of orthodontia he can, according to his skill and proficiency, mold and modify lines of imperfection to those of harmony and facial beauty. But the unskilled, lacking the delicate perception of the true ideal, may

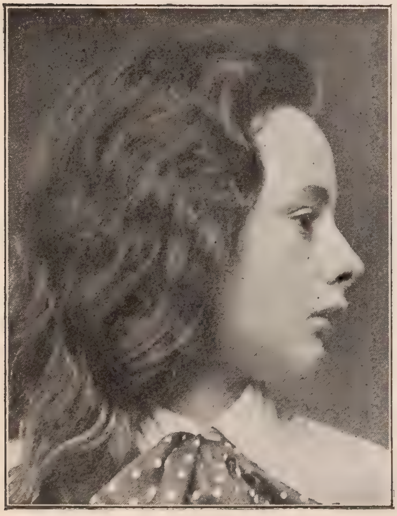
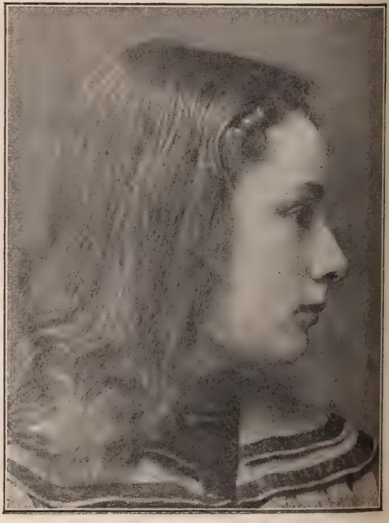


Fig. 3.

CASE I.



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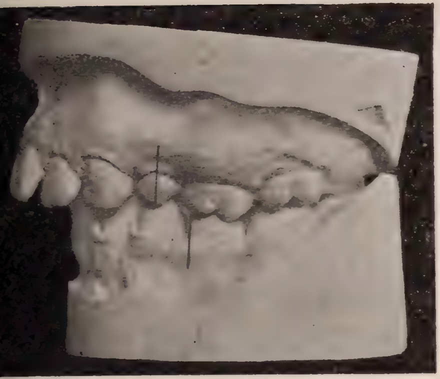


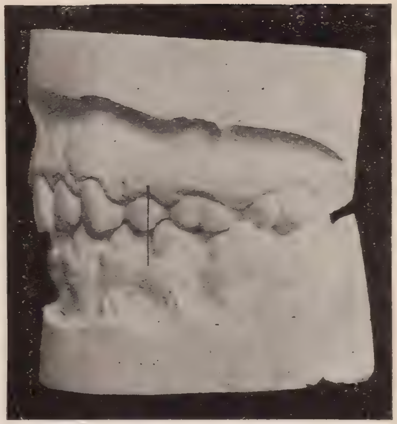
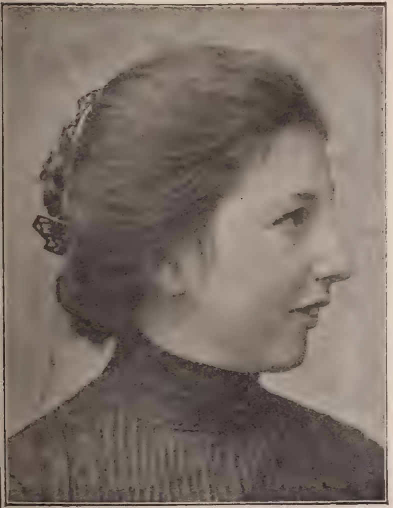


Fig. 1. CASE II. Fig. 2.

work in such utter ignorance of facial art, as frequently is the case, as not only to fail to improve the appearance, but even to produce results still more unpleasing than the original conditions. The orthodontist, like the artist, must be endowed by nature by a special talent, which enables him to set forth in each case, so far as possible, artistic conception of matured beauty. In order to reach this high



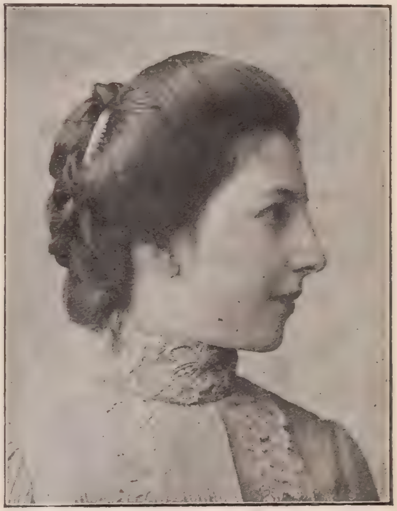


Fig. 3. CASE II. Fig. 4.

standard of artistic attainment he must have a clear conception of the perfect proportions of the features of each given type. He must be able to judge any inharmony in the balance of the forehead, the nose, the lips and the chin of each individual face. The artistic study of the human face is exceedingly interesting, and we who are located in this land of art are specially favored in the acquisition of knowledge pertaining to this absorbing subject.

The principal possibilities of facial expression and beauty are confined to a small area immediately surrounding the mouth. The esthetic contour of this expressionable area is largely dependent upon the teeth, and consequently any malocclusion of the teeth will, to a greater or lesser degree, mar the expression of the entire features. Formerly it was generally accepted by orthodontists that the standard of facial contour was the artist's geometrical conception of facial lines, many of which are embodied in the head of Apollo Belvedere, the masterpiece of Greek art, but experience has taught us that the most perfect harmony of the expressionable area of the face of any given case can be attained only when all the teeth are present and each tooth is in its normal position. When we have brought about this harmonious relation of the teeth we can be satisfied that our creative genius has invariably restored the distorted expression of the mouth to its proper relations with the other features.

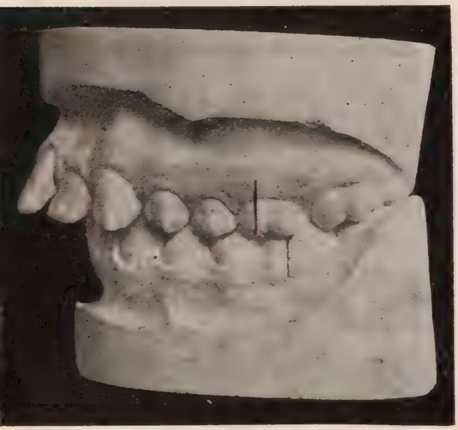
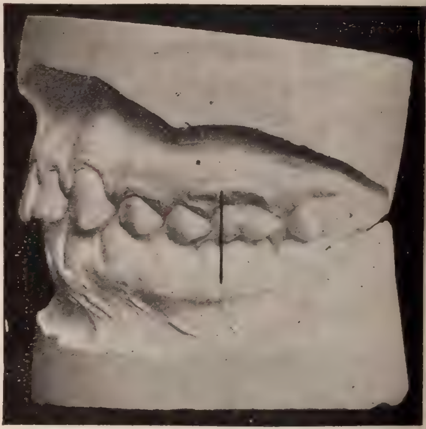


Fig. 1.

CASE III.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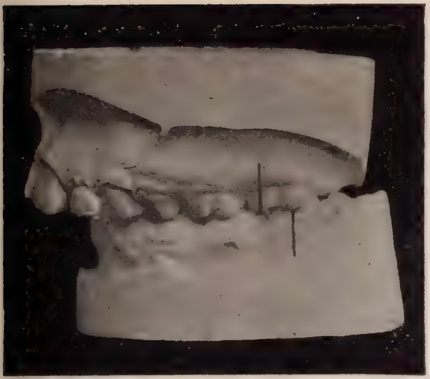


Fig. 1.

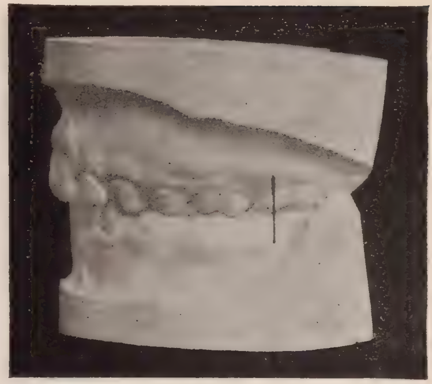


Fig. 2.

CASE IV.

Sometimes there is seemingly a lack of balance in the facial lines immediately subsequent to the normal arrangement of the teeth. This is due to the arrested or excessive development of the alveolus, which was caused by the former malpositions of the teeth; but when the normal relations of the teeth are restored, nature soon completes the development of the alveolus and thereby giving the features of the individual face a balance and proportion which is characteristic of its type.

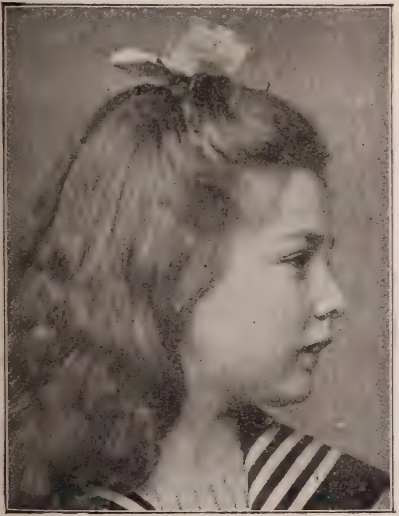


Fig. 3.

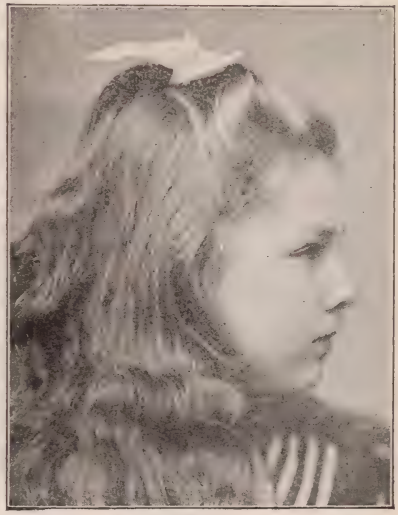
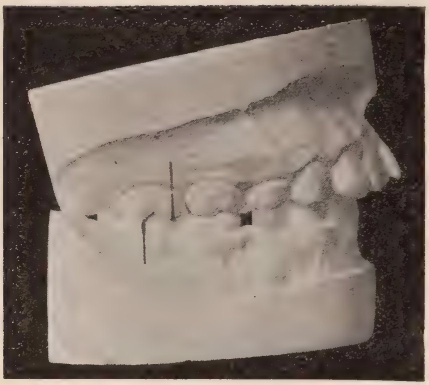


Fig. 4.

CASE IV.



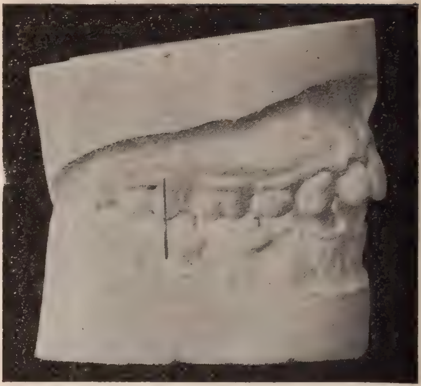
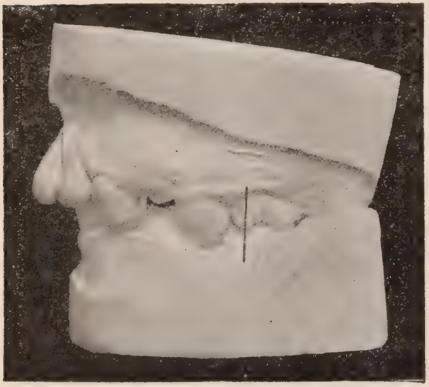


Fig. 1. CASE V. Fig. 2.

Undoubtedly the doctrine of retaining all the teeth in order to produce the greatest harmony in the facial lines will meet with opposition from those who so lavishly indulge in extraction to make room for the crowded teeth to assume more regular positions. Such mutilation of the dental apparatus can not be too strongly denounced. I shall endeavor to prove by the thirteen cases* which I have brought for your inspection that it is wrong, absolutely wrong, to extract a bicuspid or molar in the treatment of malocclusions. The greatest difficulty I experience in my work is the treatment of cases where some dentist has committed the irreparable wrong of



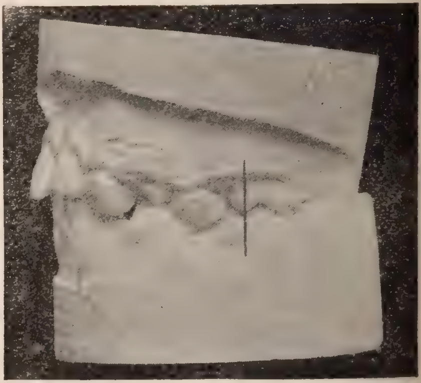


Fig. 3. CASE V. Fig. 4.

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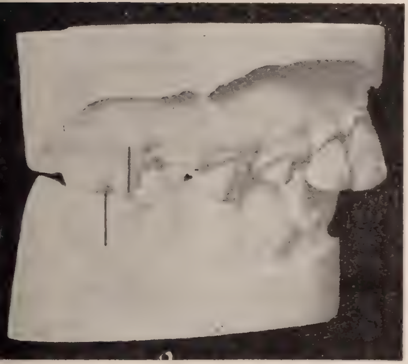
*To one of these thirteen cases there are no accompanying illustrations.

extracting the first molars or bicuspids, and sometimes even an incisor or a cuspid.

It was with no little gratification that the orthodontist welcomed the Angle classification of malocclusions of the teeth in 1900. This distinguished orthodontist made the first step in creating this new era in the history of this great branch of dental science by making occlusion the paramount consideration and defining orthodontia as being that science which has for its object the correction of malocclusions of the teeth.

A student of orthodontia, in order to realize the import of malocclusion, must know what normal occlusion is, how manifest, and what it implies, otherwise the attempt to correct faults will often result simply in changing one imperfection for a worse one.



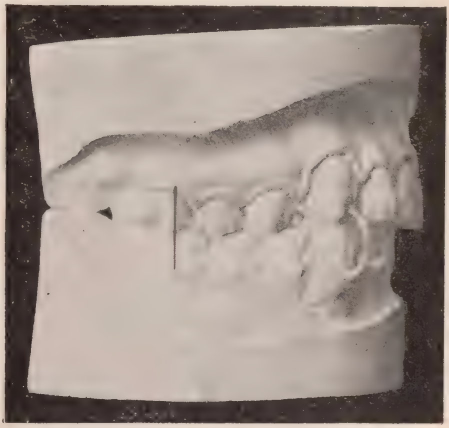
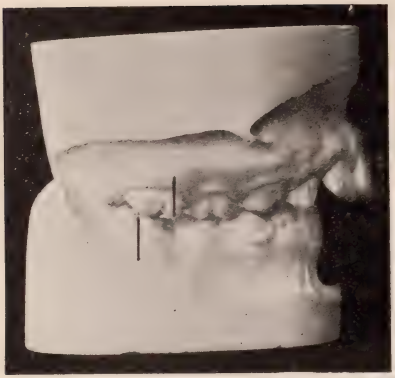


Fig. 1. CASE VI. Fig. 2.

Within the limits of a short paper I can not give an anatomical description of the occlusion of the teeth, but will simply state that when the teeth are in normal occlusion the relation of the occlusal planes afford the greatest possible masticating surface and provide for the teeth a mutual support.

The foundation of occlusion is the relative position of the first molars, and when in normal occlusion the mesio-buccal cusp of the upper first molar is received in the buccal groove of the lower first molar. If the first molars lock normally, then it is possible for



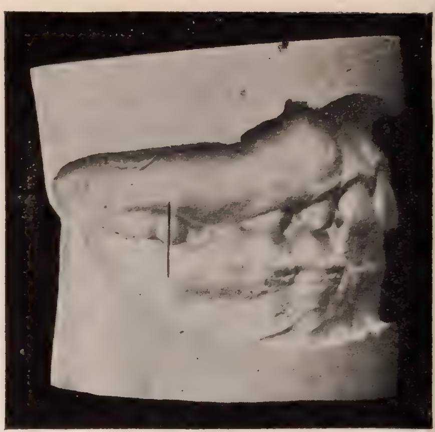
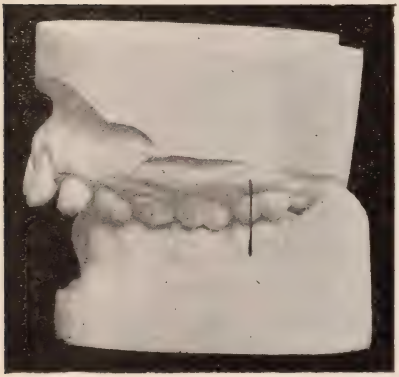


Fig. 1. CASE VII. Fig. 2.

the normal eruption of all the other teeth, both anterior and posterior to them. If the first molars lock in an abnormal relation, either mesially or distally, then all of the teeth, both anterior and posterior, will be forced to erupt and lock in abnormal occlusion, either mesially or distally, according to the locking of the first molars. Since the molding of both arches is so largely dependent upon the locking of the first molars, is it difficult to appreciate the value of these teeth? Ought they not to receive our most careful consideration and our most skillful treatment in order that their preservation may fulfill the purpose intended by nature?



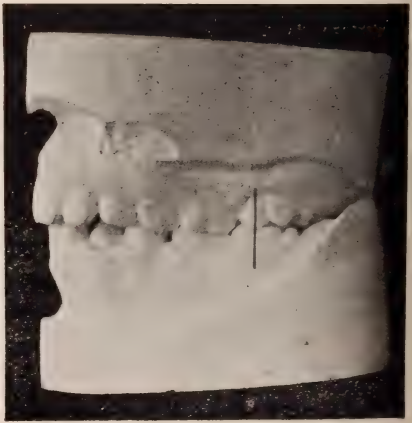


Fig. 3. CASE VII. Fig. 4.

Formerly we were able to correct all malocclusions without extracting any tooth or teeth excepting in cases where the mesio-distal relations of one or both sides of the arches were abnormal. In cases where the abnormality in the mesio-distal relation of the arches was caused by an arrested development of the inferior maxillary the esthetic correction of the facial lines and the establishment of normal occlusion was maintained by the permanent advancement of the lower jaw. Frequently in cases where the mesio-distal relations of the arches were abnormal it was impossible to establish even a partial normal occlusion by the most intelligent application of forces known in orthodontia; but recently, through the introduction and development of what is known as the Baker anchorage, the treatment of these tedious and protracted cases has been so wonderfully simplified that now a mesio-distal abnormality in the relation of the teeth can be perfectly corrected with marvelous ease and rapidity. In fact, the scientific application of this reciprocal force has practically revolutionized the practice of orthodontia.

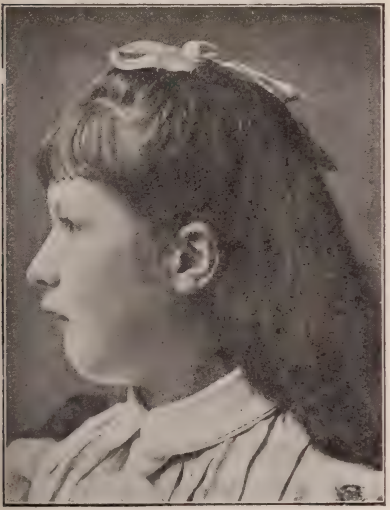


Fig. 5.

CASE VII.

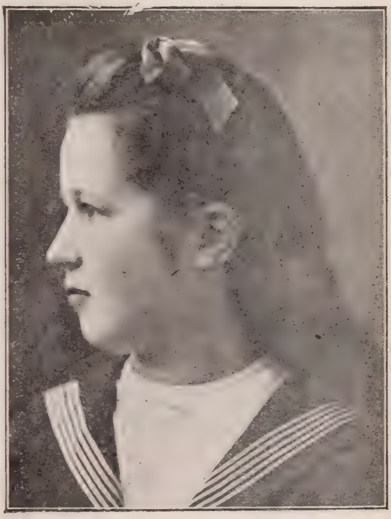


Fig. 6.

Before discussing the merits and possibilities of this form of anchorage I beg to briefly call your attention to the diagnosis of malocclusions of the teeth. As already indicated, in order to correctly

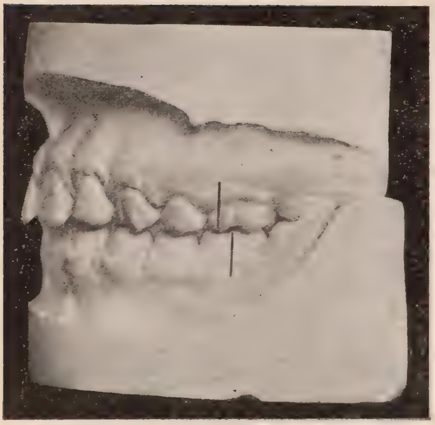
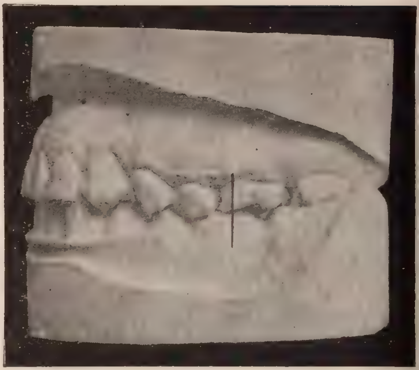



Fig. 1. CASE VIII. Fig. 2.

diagnose any case of malocclusion it is essential to have an accurate knowledge of normal occlusion and harmony in the facial lines of the given type. Unless these standards are so thoroughly fixed in one's mind as to form a basis from which to reason and to intelligently note all deviations from the normal the limits of the abnormal must be very indefinite and the attainment of harmony in the occlusion and facial lines very uncertain.

Failure to grasp the underlying principles of occlusion has

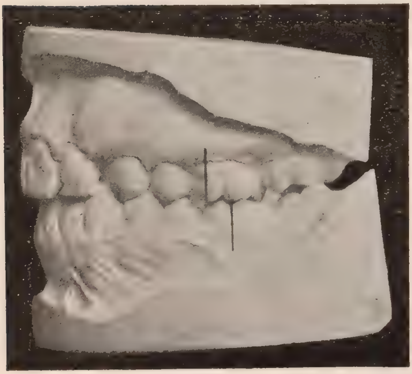
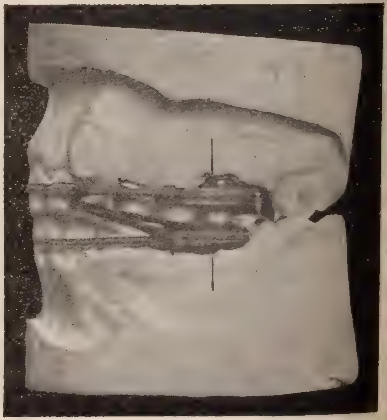
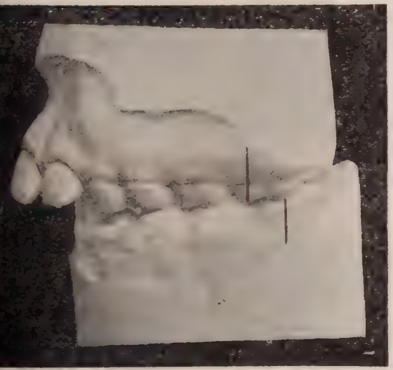



Fig. 1. CASE IX. Fig. 2.

given rise to the belief that each case differs from all other cases, necessitating the invention and construction of an appliance to meet its special requirements. These erroneous ideas were largely entertained by the profession prior to the introduction of the Angle classification of the teeth. This classification not only brought with it a more thorough knowledge of the principles of orthodontia, but also a greater simplification of the appliances necessary to correct malocclusions.



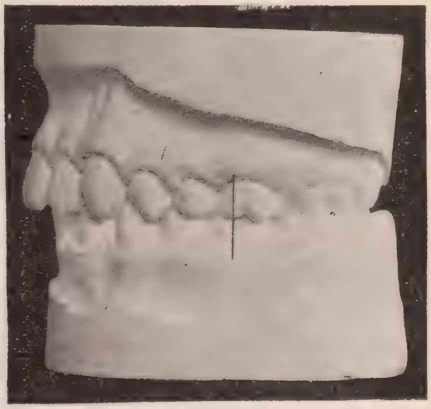


Fig. 1. CASE X. Fig. 2.

In diagnosing malocclusions we must consider, first, the mesio-distal relation of the jaws and dental arches; second, the individual position of the teeth; and, third, the facial lines. Naturally the occlusion of the first molars has been selected from which to note variations from the normal in the dental arches. The favorite point employed to indicate the normal or relative mesio-distal relation of the dental arches is the mesio-buccal cusp of the upper first molar, which, as we have stated, when in normal occlusion is received in the buccal groove of the lower first molar. If the first molars occlude normally, then it is possible for the subsequent teeth upon eruption to assume their correct mesio-distal relation. However, not infrequently the subsequent teeth erupt in malpositions. In such cases the treatment indicated is to place the malposed teeth in their correct line of occlusion. This must necessarily result in a complete harmony of the dental arches and a perfect occlusion of all the teeth for the relation of the first molars, the starting point or foundation of occlusion, is correct.

The simplest, the most convenient and the most efficient appliance to correct such malocclusions is the expansion arch, which, when intelligently operated in connection with wire ligatures, is highly efficient in creating a perfectly normal dental arch. Case XIII.

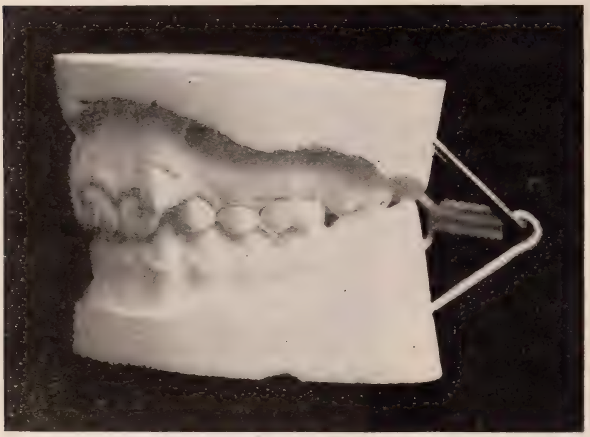


Fig. 1.

CASE XI.

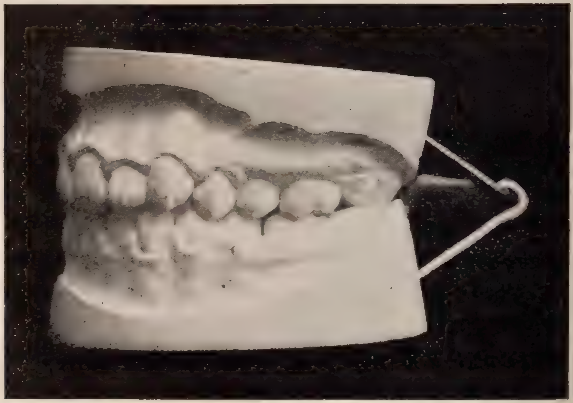


Fig. 2.

But if the lower molars in taking their position should lock with their antagonist distally or mesially to normal, then each subsequent tooth will be forced to take a malposition, and the result will be a complete malocclusion of one or both sides of the dental arches, as the case may be. Cases I to XII.

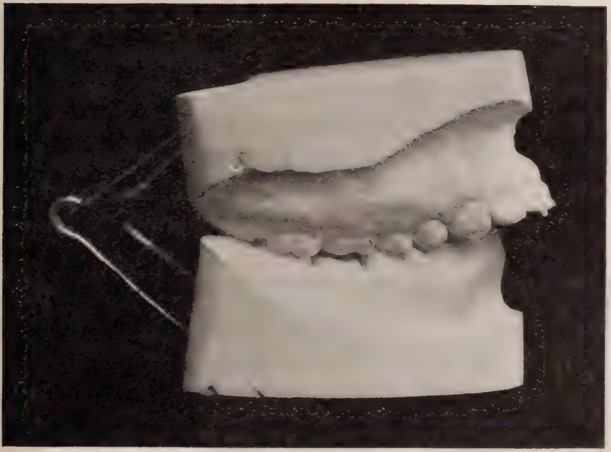
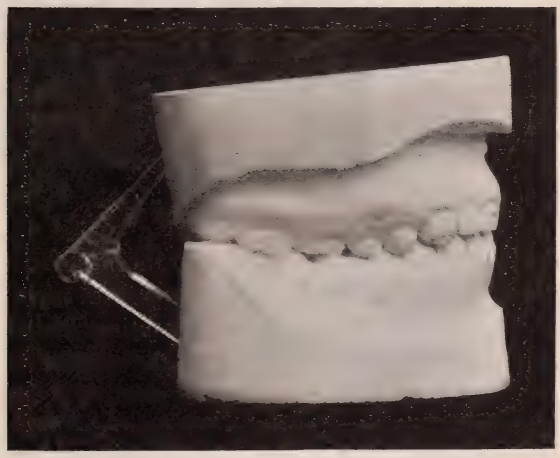


Fig. 1.

CASE XII.

Fig. 2.



The treatment of these mesio-distal malocclusions clearly indicates that we should not extract any tooth or teeth, but correct the cause of the deformity by placing the first molars, nature's initial key to perfect occlusion, in their normal relations. This is accomplished in cases where the lower arch is distal to normal relations by shifting all the upper teeth distally and all of the lower teeth mesially, or, in special cases, where the facial lines demand it, the bodily advancement of the lower jaw, until we have established a normal locking of the first molars, normal relations of all the occlusal planes of the teeth and harmony in the size of the arches.

To produce this mesio-distal shifting of the teeth, expansion arches, engaging tubes which are attached to the clamp bands on the first molars, are adjusted to the upper and lower dental arches, and the force employed is exerted by means of elastic bands, which engage a sheath hook attached to the under surface of the upper expansion arch in the region of the cuspids, and the distal end of the tubes on the bands of the lower first molars. FIG. 1.

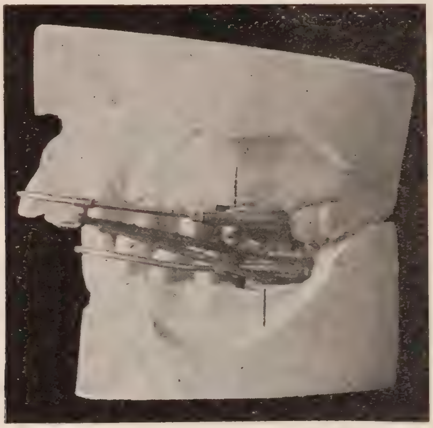


Fig. 1.

This force is reciprocal, operating distally on the upper arch and mesially on the lower, and the possibilities associated with its intelligent application have, as mentioned above, practically revolutionized the practice of orthodontia. With the combination of the expansion arches, possessing universal adaptability in the correction of the accompanying malocclusions of the teeth, and this reciprocal anchorage, for the correction of any abnormality in the relation of the mesio-distal relation of the dental arches, we have an appliance remarkable for its simplicity of construction, adaptability and manipulation, which will, if properly operated, correct the most complicated cases with surprising rapidity and absolute comfort to the patient.

Both upper and lower expansion arches should have nuts operating in front of the bands attached to the molars. These nuts give the operator the greatest possible control over the movement of both dental arches, for by tightening these nuts on the upper arch all of the force of the elastic ligatures will operate on the upper molars, moving them distally; and by loosening the same nuts the force will be expended on the anterior portion of the upper arch. The lower anterior teeth should be ligated to the lower expansion arch in order that the force operating mesially on the first molars will be effectual in moving the entire lower arch. By tightening the nuts on the lower expansion arch all of the force of the elastic ligatures is directed mesially on the anterior lower teeth, and by loosening the same nuts it is expended on the lower first molars and bicuspids.

In cases where the distal occlusion of the lower jaw is limited to one side the treatment is identical with that just described, excepting only one sheath hook should be used with its accompanying rubber ligature. Cases V, VII.

Usually in this class of malocclusions the incisive edges of the lower anterior teeth impinge upon the linguo-gingival incline of the uppers or upon the mucous membrane of the roof of the mouth; but this seemingly difficult part of the treatment is also perfectly corrected by the influence of the reciprocal force of the elastic ligatures through their tendency to elevate the lower molars, also the bicuspids if ligated to the wire arch.

In cases where the lower arch is mesial to normal relations, the treatment described is reversed. The sheath hooks are attached to the upper surface of the lower expansion arch, well forward, and rubber ligatures are stretched between them and the tubes on the bands on the upper first molars, as shown in Fig. 2.

It is readily observed that since the normal relation of the first molars is the key to normal occlusion, we can, by the application of this reciprocal anchorage, correct any malocclusion of the first molars early in life, and thus make it possible for the subsequent teeth, upon eruption, to take their correct positions in the arches. By taking advantage of the possibility of this early treatment, these simple cases, which would subsequently develop into most complicated cases, can be perfectly corrected with ease and rapidity. Case V is a good illustration of this early treatment I advocate. The patient was a young girl, age 11, living out of Dresden, and during the actual treatment, lasting some four weeks, she made but four visits to my office.

Among the other possibilities of this appliance the relative distance between the anterior and posterior parts of the dental arches can be increased or decreased. For instance, in cases VIII and IX there was not room for the superior cuspid to erupt in its proper position. Reciprocal anchorage was applied to the left side only, operating distally on the upper molars and subsequently on the bicuspids. The anterior upper teeth were ligated to the expansion arch, and by tightening the nuts on the expansion arch in front of the tubes of the molar band the anterior teeth were moved forward. Thus by the backward movement of the bicuspids and molars and the forward movement of the anterior teeth there was sufficient room created for the normal eruption of the cuspid, and at the same time a perfect occlusion of all the teeth was established.

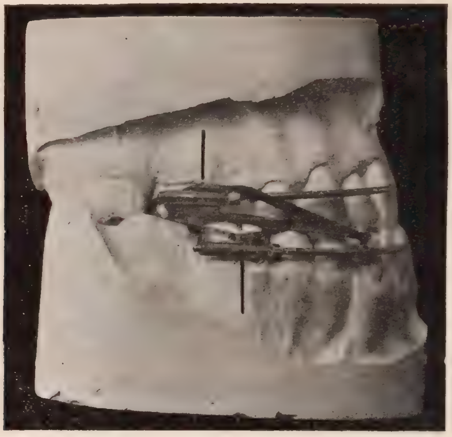


Fig. 2.

The upper and lower expansion arches are shaped to approximate normal dental arches (Fig. 3), and while we are performing the simple operation of bringing all the teeth in contact with the wire arches, thus producing normal dental arches, the elastic ligatures are practically correcting the other abnormalities in the occlusion.

The strength of the rubber ligatures employed with this appliance depends upon the number of teeth to be moved, and also upon the physical characteristics of the patient. Nos. 6 and 8 red rubber bands, made by A. W. Faber, Berlin, are very satisfactory for this purpose. In my practice, besides these two, I have three other sizes, which I have had specially made. Through my suggestion the No. 6 red has recently ben placed on the market by the above-mentioned firm. The S. S. White Dental Manufacturing Company, Berlin, also supply the Angle rubber bands, which are about the same as No. 6 red made by Faber.

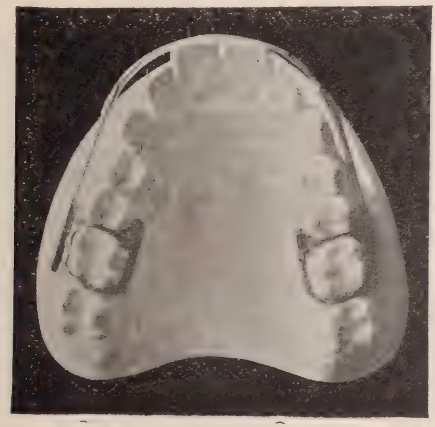


Fig. 3.

When perfect relations of the teeth and dental arches have been established, it is most important to mechanically retain the teeth in their new positions by some simple device which will prevent any change in the mesio-distal relation of the arches. In cases that are accessible to frequent observation I adjust a simple device similar to that used to maintain normal relations of the arches in cases where the bite has been jumped. But many of my cases live so far from Dresden that I do not have an opportunity to see them subsequent to the completion of my treatment. In such cases I adjust retaining plates possessing many of the excellent features of the Baker hygienic retaining plates. These plates are equipped with labial bows and on either side there is a spur extending downward from the upper labial bow and operating distally to the end of the lower labial bow, as shown in Fig. 4. The spur is made from the piece of clasp gold which passes between the teeth and joins the labial bow to the plate by extending it bucally and downward. This plate is so constructed as not to interfere with the final adjustment of the inclined occlusal planes as the teeth settle in their normal positions. Before dismissing these patients I furnish them with duplicate plates, so that in case of accident they can insert the reserve plate and thus prevent any change in the position of the teeth. These patients, from time to time, send me bites, taken in modeling compound, from which I determine, so far as possible, the conditions of the case. The retainers are worn for some time subsequent to the establishment of perfect occlusion of the occlusal planes and then they are discarded. If perfect normality of occlusion has been established it will be impossible for any change to take place in the position of the teeth, for normal occlusion, nature's retainer, is unchangeable.

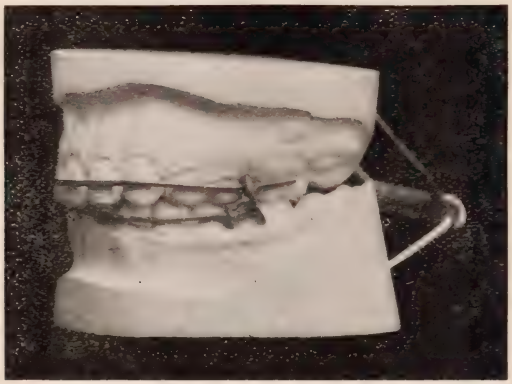


Fig. 4.

I invite your inspection of the models of these thirteen cases, in twelve of which I have established normal occlusion by the mesio-distal shifting of the dental arches.

DENTAL USES OF NERVOCIDINE.*

BY DR. F. AGUILAR, MADRID, SPAIN.

All that relates to the relieving of pain is of such great importance to the dental practitioner that his attention is always attracted by the results of any researches made in this branch of therapeutics. The history of anaesthetics, whether local or general, from the time of Horace Wells to our own days, shows that the dentist has constantly contributed by experimental investigation to the progress of that department of Materia Medica. And now credit must be given once more to our profession for another important contribution to pharmacology by the discovery of *Nervocidine,* an agent which I believe will soon occupy a prominent place, not only in dental practice, but also in general surgery, and especially in ophthalmology. It was in view of diseases of the eye that I first read of the extraordinary anaesthetic properties of this drug discovered by one of our colleagues, Dr. Dalma of Budapest. Later on I saw a very well written article of Dr. Soderberg of Sydney, published in the *Dental Cosmos,* which again attracted my attention to the subject; and afterward, when I visited Budapest, I appreciated the importance of the experiments that were being made by Professor Arkövy, who with the aid of his assistants. Doctors Madzaar and Balassa, at the Dental Department of the University of Budapest, was making fundamental investigations on the pharmaco-dynamic effects of Nervocidine. These gentlemen have at their disposal a well-equipped laboratory at the University, where they are constantly making researches on various subjects, some of them of considerable interest to our profession; and it is through the kindness of these professors that I obtained the information that led me to personally experiment with the drug.

Nervocidine is an alkaloid obtained from the bark of a plant that grows in East India called *Gasu-Basu.* It contains C.N.H. and C.L. in combination not yet well defined, and it is prepared in the form of a whitish powder of an acid reaction, very hygroscopical, and soluble in water.

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*Read before the American Dental Society of Europe.

The experiments of Professor Arkövy show that Nervocidine is a most powerful poison, which acts by producing paralysis of the nerve endings as well as of the nerve centers, death taking place through paralysis of the motor centers and thus indirectly of the heart. The toxicity of this drug is so great that by the injection of one gram of one-hundredth per cent solution of Nervocidine I caused the death in two hours of a dog weighing nine kilograms. Nervocidine is the most powerful local anaesthetic known, but owing to its great toxicity we can not inject it subcutaneously. Its characteristic feature is the long duration of the anaesthesia that it produces, lasting not for minutes or hours, but for days. Its field of utility in our practice is very great in temporarily suppressing the sensibility of the dental pulp, which it accomplishes with the most striking efficiency. We can therefore use it:

(a) In the treatment of dental hyperesthesia, when it will do what no other agent can.

(b) In the extirpation of dental pulp, as an advantageous substitute for arsenic.

(c) In the amputation of the coronal part of the pulp in cases of mummification.

As an obtudant for excavating sensitive dentine it is of the greatest value. Up to now we have been satisfied with cocaine in its different preparations as a local anaesthetic for the extraction of teeth, and we have been also satisfied with arsenic as a devitalizing agent, but who can say that he is equally pleased with the medicaments that we have for the treatment of sensitive dentine?

The long list of physical and pharmaceutical remedies recommended for dental hyperesthesia we all know fail in acute cases. Cataphoresis is discarded for its inconvenience in use. Refrigeration with chloride of ethyl is the most active remedy, but it has the great disadvantage of its fugitive action and the painfulness of its application, insupportable by some patients. Hot carbolic acid, recommended by our worthy master, Dr. Jenkins, although very efficacious in mild cases, is not sufficient in acute hyperesthesia. It is then that Nervocidine will surprise us by its effects, for the application of this drug will, without destroying the vitality of the pulp, suppress in a few hours all sensibility for excavating.

To illustrate the method of application I will describe a typical case of hyperesthesia treated. A lady presenting a cervical cavity in the buccal surface of the first lower bicuspid complained of such sensibility that severe pain was produced at the simple contact of a pellet of cotton. I dissolved ten grams of Nervocidine in two drachms of fluid of zinc oxysulphate cement (Fletcher's Artificial Dentine), and of this liquid I took a sufficient quantity to mix with the powder in the ordinary way, and filled the bottom of the cavity (which had been, of course, previously dried) with this cement, sealing it up with gutta percha. This was done at ten o'clock in the morning. At two in the afternoon the patient returned and to my great astonishment I was able to excavate down to the pulp chamber.

I have used Nervocidine during the past year in over forty cases of hypersensitiveness of the dentine in patients, either in my private practice or in the clinic of the Dental Department of the Madrid University, always taking care to select the right class of teeth with healthy pulps, and patients that I could afterward examine. In some cases, to facilitate a better inspection later on, I made temporary fillings; in others permanent fillings were inserted. The result of my experiments coincides with those of Dr. Soderberg, namely, that in all cases examined in periods varying from one to ten months after the application of Nervocidine the teeth answered to the ordinary tests for vitality of the pulp. In cases where temporary fillings had been inserted, and I was able to reopen the cavity, I found that sensibility of the dentine had reappeared, though not to the degree of hyperesthesia.

For the total extirpation of the dental pulp I proceed as follows: With a very small wetted pellet of cotton I take up a minimum quantity of the powder of Nervocidine, about the same amount as is usually taken of arsenic, and place it in the previously isolated and dried cavity, which is afterward *sealed.* This step, to prevent leakage, is very important on account of the extreme toxicity of the drug. I may cite a case where, experimenting with the same minimum quantity, the cavity was only packed with cotton, and chills and very severe vomiting followed, the alarming symptoms lasting nearly four hours. I know of no other drug that in such a small dose would produce such poisonous effects. When properly used, however, Nervocidine will, in a period varying from two to two and one-half hours, produce total anaesthesia of the pulp, and permit its painless removal. I can report success in eighteen cases with which I experimented. Dr. Soderberg says, "whether amputation or extirpation be resorted to, he can not too strongly recommend the use of Nervocidine instead of arsenic, especially for incisors, cuspids and first bicuspids. The unsightly discoloration of the visible teeth frequently resulting from pulp devitalization with arsenic ought now to be a thing of the past."

Nervocidine can also be employed for the partial removal of the pulp or amputation. We have in this alkaloid an anaesthetic which, in relation to the dose, is more active than any other. Its principal feature, and its most striking peculiarity, is that as far as the duration of its effects is concerned it leaves all other previously known local anaesthetics far behind. The placing upon the eye of two drops of one-half per cent solution produced anaesthesia of the cornea which lasted four days. A solution of the strength of 1 in 2,000, applied to the human eye, will, after twenty minutes, produce anaesthesia lasting five hours. When applied to the pulp this drug will permit us painlessly to operate in cases of pulp amputation, that operation which stands midway between the radical extirpation and the ideal conservation of the pulp, which consists in the amputation of the coronal part of the nerve and the application of an antiseptic paste over the vital nervous filaments which are left in the root canals. Theoretically in this method of procedure the antiseptic paste will mummify the minute dead particles and conserve the living remnants, but in practice we find that we can not always guage the penetrative action of the arsenic, which instead of cauterizing only the coronal part sometimes produces a total devitalization, and we are obliged, for the sake of safety, often to perform the complete removal of the pulp. When we operate under the influence of Nervocidine (for which generally two applications are required) the pulp has not lost its vitality; it is only anaesthetized and in a state of local anaemia, and we make the application of the paste upon living tissue. In nine cases in which I operated by this method on molars, using as mummifying paste under the permanent filling the formula of

Professor Muller of Altona, acid oxide of zinc glycerine, the results have been good.

From the above statements I gather: (1) That Nervocidine is the most efficacious agent known for the treatment of sensitive dentine. (2) That with Nervocidine we can produce anaesthesia of the pulp for painless amputation or for its removal in a much shorter time and with less discoloration of the tooth than by the use of arsenic. (3) That the addition made by Dr. Dalma to the Materia Medica with his discovery of Nervocidine is for us a very important one.

I must beg you to excuse me for having abused your attention so long with these rough notes. I have simply desired to induce other more capable practitioners to experiment and report to the Society upon what I believe to be a most valuable drug in dental practice.

THE NEW ERA IN DENTISTRY.*

BY DR. C. M. WRIGHT, CINCINNATI, OHIO.

The new era in dentistry, beginning with this century, presents three distinct fields for special cultivation in Phophylaxis, Orthodontia and Esthetic.

For the past third or quarter of a century the finely finished gold "contour" filling has been held so near to the eyes of the dental profession that it has obscured the broad view of true medico-dental principles.

To be sure, there has been steady advancement in Etiology, Pathology and Surgical Therapeutics—also in the study of mal-occlusions of the teeth—and Orthodontia, as well as in Esthetics.

But these departments have been studied by a handful of men and have not become the universal basal ideas upon which the entire superstructure of dental practice must be built in the new era.

The American Dental Society of Europe stands among the first of the advance guard of progress. The program for this meeting, which has just reached me, affords evidence of this. The history of the work of individual members of this Society shows alertness in prophetic perceptions of the "coming theories" of dental art and science.

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*Read before the American Dental Society of Europe.

The program shows that orthodontia, mal-occlusion and the esthetic porcelain art will occupy a large share of attention through papers and discussions. Last year essays on Preventive Dentistry or Prophylaxis were offered.

After forty years of continuous practice and observation of methods—and of fads and fashions—of dental practice, it seems clear to me that the new era will present these three as the most conspicuous and important principles upon which all our ideas of usefulness and success must depend. I should lay down the order as, first, special methods of prevention, such as *frequent and regular* skilled attention to the teeth, a la D. D. Smith. This to consist of manipulative and surgical operations and medicinal and chemical applications by the dentist himself in anticipation of disease.

A proverb says, "Only the sick need a physician," but an aggressive conservatism now proclaims that active measures shall be employed *before* sickness develops. The sickness must be prevented. This is especially logical and legitimate in dental practice, for there is no department in sanitary medical practice in which the stitch in time can be more readily proved to save nine as in dental prophylaxis.

Second. In the same line of thought, orthodontia must occupy the attention of all practitioners instead of specialists in this department, as at present—to prevent evils which result from mal-occlusions and irregularities and also for esthetic reasons.

Third. The concealment of dental repairs by the use of porcelain instead of the glaring gold of the past fifteen or twenty years. The porcelain art era is definitely here.

These three fields, Preventive Dentistry, Orthodontia and the Porcelain Substitute, will require different methods of practice, different methods of teaching in dental schools and different methods of preaching at our chairs to patients; but our past studies and acquired skill in other directions as a profession will widen the gates and progress will result according to the natural law of evolution.

INJUDICIOUS MEDICATION.*

BY TRUMAN W. BROPHY, M. D., D. D. S., CHICAGO, ILL.

Disease is a departure of a part from a normal standard. A remedy is an agent that will place the part in the most favorable condidtion to return to health. Any agent or drug that aggravates the part is not a remedy, it is a poison to the tissues.

With our increasing knowledge of the factors operative in the etiology of morbid anatomy, with a better understanding of the behavior of the pathogenic bacteria, we employ therapeutical agents at our command with more confidence in our ability to assist nature in eradicating disease, in bringing the abnormal parts back to a normal or nearly normal condition.

Medicines do not cure, but when skillfully employed act as auxiliaries, as assistants to nature, to aid the vital forces to resist the invasion of disease and promote the process of repair.

Our most important and frequently most difficult duty is to make a correct diagnosis.

Having made an accurate diagnosis, the treatment may be conducted on plans well outlined in works on Therapeutics.

The application of remedies to the treatment of disease makes it necessary to choose from the pharmacopeia those which will best serve our purpose.

In accordance with the requirements of the case we employ local agents to relieve pain, to reduce inflammatory processes, to promote the circulation, to arrest infection, to stimulate cell formation and regeneration of the tissues.

The few remedies I will name in this paper, often injudiciously employed in a local way, are very valuable when properly used.

The first agent I wish to speak of is iodine. Iodine has been used in medicine from almost time immemorial. Iodine in the form of a tincture is used largely in dentistry and has been used for many decades—how many I am not certain. The object in using iodine has chiefly been to establish counter-irritation of mucous surfaces when used in dentistry, the object of which is to extract a certain amount of serum from the congested blood vessels beneath, thus relieving a pericementitis, a periostitis, or any of the inflammatory conditions affecting the deeper seated membranes. In a general way, upon the exterior or cuticle, it is employed for the purpose of not only extracting serum from the blood, but for producing absorption to some extent of the serous fluid, thus removing from the connective tissue the excess of the fluid which may produce enlargements of various kinds, even enlargements and thickening of the bones, as the result of active periostitis, may to a great extent be relieved by the application at frequent intervals of tincture of iodine. In dentistry iodine has been employed so long and has become so fixed as a standard remedy that it is perhaps used more extensively than any other agent except carbolic acid, and combined with carbolic acid in the years past, first suggested, I think, by the late Dr. William H. Atkinson and employed in various ways in the mouth. It was regarded by him and others as a potent agent. The tincture of iodine, as employed in dentistry in the management of pericementitis, has merit when properly used. But it is particularly concerning the injudicious use of these agents that I wish to speak.

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*Read before the Odontological Society of Chicago.

Tincture of iodine in inflammation of the pericementum, possibly due to the carrying of infection through the apical foramina, following the disorganization of the tooth pulp, may under certain conditions be valuable, but under other conditions it is absolutely objectionable and should not, in my opinion, be employed. For instance, if it were employed in an acute inflammation of the pericementum, it might resolve the inflammatory pericemental process and bring the parts back to a nearly normal condition. I say nearly a normal condition, because I believe that a part, after it has once undergone extensive inflammatory action, can never be restored to an absolutely normal condition; that it is forever after that easily susceptible to the recurrence of inflammation. So tincture of iodine, employed in a case of acute pericementitis, may be of value in reducing the inflammation by the extraction of serous fluid and the patient get relief. We know that from actual experience applications of it under such conditions have been sufficient to relieve the soreness which is manifested by the pressure upon the teeth, and the patient receives absolute benefit from its application. On the other hand, if this inflammatory process has gone beyond the limit of resolution, beyond the limit of returning to its normal condition, without the formation of pus, and pus has actually begun to form, the tincture of iodine is not indicated. It is rather a detriment than otherwise, and, in my opinion, should not be employed. I might suggest in its place, when pain is severe, one of the most innocent agents, so far as I know, in the management of pain, yet one of the most valuable for the relief of pain of that character, a saturated solution of menthol, carried in contact with the parts upon pellets of cotton or of gauze, and retained in position until the pain ceases. Often the pain may terminate in less than ten minutes from the time it is employed and may not recur. In this connection I might say that in the last issue of the *Dental Cosmos* (January issue) there is an article on the use of cocaine, together with adrenalin chloride, to be used for such purposes. We know the action of adrenalin chloride is to force the blood away from the parts. This article was read before the American Dental Club of Paris and freely discussed by the members, all of whom I have the pleasure of knowing. The adrenalin chloride forces blood away from the congested parts and thereby relieves the patient of pain. So, then, as to iodine, I would not advocate its use after the acute stage of inflammation has passed, as applied to pericementitis.

I was going to say something about the essential oils and their efficacy as antiseptics when applied to the teeth, but I will pass them by by saying only this: An old remedy that has been used faithfully in surgery so many years, and has been so many times laid aside and other agents substituted for it, still holds sway, and it will probably stand down through the ages, and that is carbolic acid. Some of our most distinguished gynecologists, who abandoned carbolic acid a few years ago and made use of other remedies, have come back to it, and they say they will cling to it until something better has been offered to take its place.

Adrenalin chloride is a valuable agent in the management of tissues prior to operations. It has the power of carrying away the blood from the tissues so that we may perform operations with little or no hemorrhage. Applied to the dental pulp, together with very little cocaine, we may remove it without bleeding and without pain. But in the use of cocaine anywhere we are menaced by the possibility of exciting a condition that we may have great trouble to overcome. I believe that it has often resulted in injury of the peripheral branches of the nerves, that have never been restored or have never returned to their normal condition. So, in the use of cocaine, even in the teeth, for the purpose of devitalizing or anesthetizing a tooth pulp, we must be extremely careful and not use so much as to carry it into the membranes surrounding the root lest we do harm by establishing anesthesia of the third or second branch of the nerve, which may not be overcome by the lapse of time.

Nitrate of silver is an agent that has done a great deal of good in dentistry as well as a great deal of harm. It has done harm by discoloring teeth; it has done good by rendering sensitive dentine less sensitive. I question the propriety of using it for the purpose of obtunding sensitive dentine. When it is possible to get access to the dentine by the use of a corrugated engine burnisher, we may reduce the sensitiveness of that dentine by friction. I take it friction closes the open tubuli or the spaces within the cement, if you please, having organic matter within them, so that sensation is not transmitted as it was formerly. But in the application of these agents in the treatment of disease, nitrate of silver and its preparations are of great benefit to patients. Of these preparations, perhaps, the three that have the greatest attention given to them and those that have been used most extensively are albargin, protargol and argyrol. Albargin, the white silver salt preparation, is valuable; it has no color, yet when exposed to the air it takes on color the same as nitrate of silver, which is white, but when brought in contact with air and light it becomes darker. Protargol has its advantages in that it can be used with less irritation to the parts. Finally, argyrol, the most valuable of them all, has come into use and has pretty generally taken the place of the other agents. Why? Because it is more soluble and has the advantage of penetrating more deeply into the tissues and destroying more thoroughly the pathogenic bacteria there imbedded. But it has its objections. It is, like the other agents, used too frequently and too long a period, so that it loses to some extent its potency, although it is not irritating to the parts. Some of our eminent ophthalmologists use it in the proportion of about twenty-five to thirty per cent solution. Dr. Hotz, of this city, has used as high as a fifty per cent solution in the eye. In conditions about the mouth it is a valuable agent. Take, for instance, the little ulcerated surfaces we see upon the mucous membrane of the lips, of the cheeks, the tongue, the gums, the apthous patches, so-called, drying off one of those patches, and saturating a little cotton with argyrol solution, twenty-five per cent, placed in contact with the abraded surface, will destroy the bacteria there imbedded and the patient will get well. One application is generally sufficient for this purpose. It has the advantage over the other silver salt solutions in that it does not produce any irritation. The fact that it is a non-irritant is one of the strongest recommendations for its use in the practice of dentistry where we have to bring it in contact with the mucous membrane of the mouth. Its taste is not especially disagreeable.

I will conclude what I have to say, gentlemen, by saying a word or two about an agent that has, in my opinion, done a good deal of harm, one that has been the greatest mischief-maker of all drugs that have been introduced to the dental profession, and that agent comprises the oxygenized waters, peroxide of hydrogen, pyrozone, hydrozone, etc. These preparations, having the chemical equivalent of $H_2 O_2$ in different solutions, do so much harm that I am satisfied it will require years of time to inform the members of the dental profession of the danger to which they expose patients by the improper use of this remedy—peroxide of hydrogen. In the work I have to do as an oral surgeon I find that it has caused more harm than arsenic, more harm than phosphorus, or any agent that is used in dentistry with which I am familiar, because it has been carried into and through teeth, into alveolar abscesses, under the periosteum, and into places where it could not get out without rapid evolution of gases. Peroxide of hydrogen has carried infection where it could not have gained entrance had it not been for this agent.

I have here some pictures which will illustrate very forcibly what I am saying to you. The first one I show you is the skiagraph of the jaw of a patient who lost nearly, as you will see, one-half of the lower jaw (Fig. 1). The patient had some molar teeth that were diseased; abscesses formed; fistulous openings were established, and peroxide of hydrogen was forced into the fistulous openings and into the abscessed cavities. The outcome of it was the rapid evolution of the oxygen which is liberated, as you know, when in contact with blood or pus, and it found its way under the periosteum, separated the periosteum from the bone, and burrowed backward until the whole bone was involved between the cuspid tooth on the right side, back to the glenoid fossa. This bone became necrotic and I removed it at the Presbyterian Hospital. It so happened that I had four of these cases at the same time. The skiagraphs of them will show you the extent of the disease. This is an extensive case from the standpoint of a dentist. This skiagraph was made from the case of a child, five years of age (Fig. 2). You will see the permanent teeth above in the substance of the bone, and the deciduous teeth in place in the lower jaw around to the first bicuspid. Everything back of the cuspid on the left side was lost. You will notice the end of the bone. From the first bicuspid back to the glenoid fossa the bone was lost. The necrosis was extended in this case undoubtedly by the application of peroxide of hydrogen, carried in

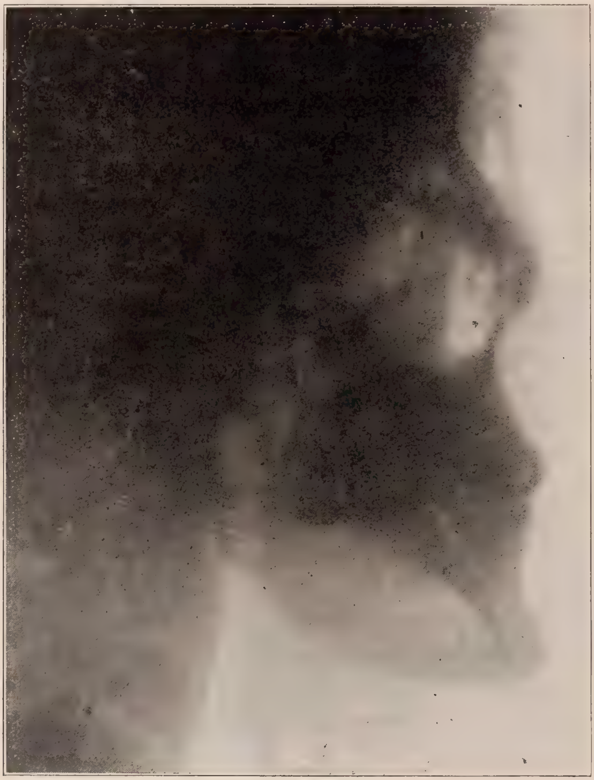


Fig. 1.

about deciduous teeth which had abscesses; a second deciduous molar had an abscess formed about it. Pyrozone was carried in about the neck of the tooth; fistulous openings were established beneath the chin; the agent was made use of time after time in washing out the cavity, the periosteum was elevated from the bone and a complete necrosis of the left inferior maxilla followed.

The skiagraph (Fig. 3) here exhibited was made of a case of phosphorus necrosis of the lower jaw. In such cases peroxide of hydrogen should never be used, as the pus would be carried along by the pressure of peroxide of hydrogen, and thus infection and destruction of bone would follow.

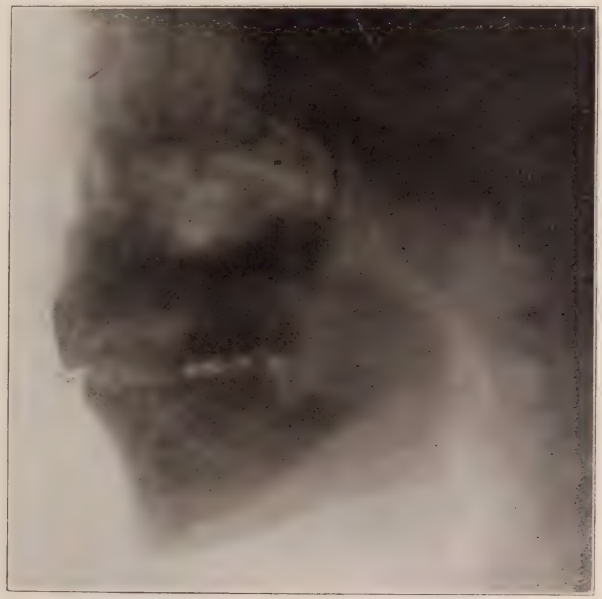


Fig. 2.

I can not say too much in closing in denouncing the improper use of peroxide of hydrogen. I have talked with my associates in surgery and they agree with me that it is doing an immense amount of harm in the management of disease of bones where the agent is carried in contact with the bone with a view of cleansing the parts and rendering them aseptic. If this work of destruction is carried on by the use of this drug in the future as it has been, no one can tell what an immense amount of harm will be done. I hope that every member of the profession, who takes this subject up and gives it the thought that it is entitled to, will do all he can to prevent its further injudicious use. The most serious and most dangerous conditions are brought about by its use and I am satisfied that we can not do too much in discouraging its employment injudiciously and indiscriminately.

Fig. 3.

With reference to oil of cassia, in my opinion, it should never be used in a tooth, because it is a source of irritation to a tooth. It will penetrate everything—dentine, cementum, pericementum and go through the bone beyond. Furthermore, it discolors the tooth.

THE AMERICAN DENTIST ABROAD: A TRIP AROUND THE WORLD.

BY J. W. EGBERT, D. D. S., MADRAS, INDIA.

[The following graphic account of a trip around the world by the well-known American dentist, Dr. Egbert, will, we feel sure, appeal to our readers. It is always refreshing to read of the habits and customs of the natives, and more particularly so when written from the dental point of view. Dr. Egbert has the faculty of telling what he knows and recording what he sees in a most entertaining manner, and we promise our readers a treat in these articles, which will extend for at least three numbers.—EDITOR DENTAL REVIEW.]

It is a great thing to be a dentist. It is a greater thing to be an American dentist, and among the greatest disseminators of civilization the American dentists practising abroad take first rank.

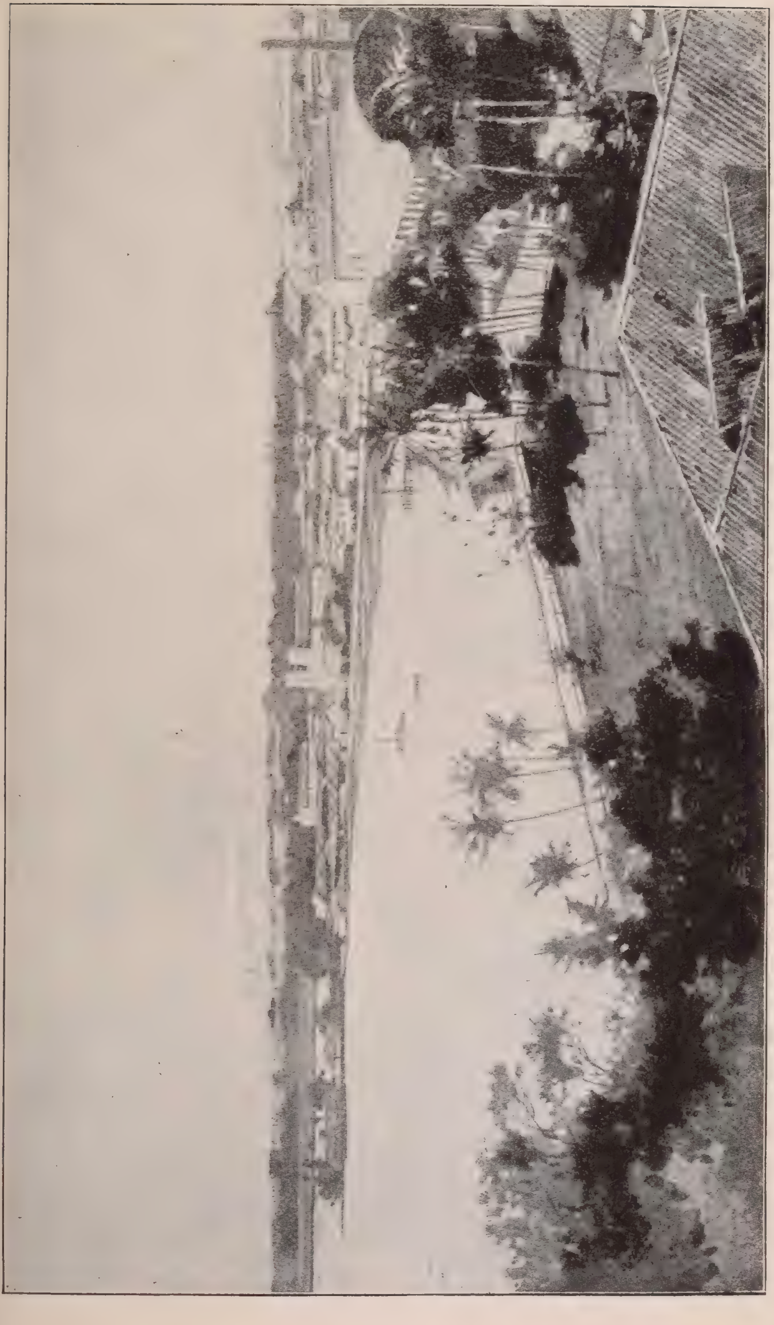
As one of the latter class it has been my privilege to meet fellow practitioners in all parts of the world, and it has occurred to me that you who are laboring in the rear and busy with practice, and research, and society work, may be interested in those of your profession who form the vanguard of dentistry and who are opening up new fields for practice and bringing your thoughts and ideas to the minds of millions who have no dental attendants of their own save the village goldsmiths, and who know naught of dental science. When you contemplate the 325,000,000 of India with forty-five trained dental surgeons, or the 400,000,000 of China with even fewer dentists, you will begin to comprehend what a task we have before us and how eagerly we look forward to the receipt of THE REVIEW, the *Cosmos* or *Items*, to see what you are doing in practical work that will help us to save teeth and to educate the masses to whom we are called to minister.

The American dentists abroad are a noble band of pioneers, with difficulties to surmount that you know not of, and if told could but dimly appreciate, in your land of mutual helpfulness and numerous supply houses to meet your every need or want.

On June 1, 1903, it was my privilege to start on a trip for home in Illinois, and thence on around the world to my practice in Madras. It was a privilege that few enjoy to meet the splendid, whole-souled Americans who represent our profession in the near and far corners of the earth. In Colombo Dr. Kama, a Parsee gentleman, who took a post-graduate course at the Chicago College of Dental Surgery in 1893 during the World's Fair year, has a very extensive and lucrative practice. His office on the sea front near the Galle Face is a dream of Oriental beauty, and the antique carvings, India dhurries, cashmere rugs and India arms would turn the heart of an Oriental curio collector green with envy. Dr. Kama's clientele is as mixed as the races of the earth, for Colombo is one of the "cross roads of the world," and people from every nation under the sun find their way into his surgery. Colombo is a fascinating place to visit and is so luxuriantly tropical that it meets the expectations of the most imaginative and is one of the few places that comes up to one's expectations—though even there one sniffs in vain for the "spice laden breezes." I sailed on June 2d on the Bibby Line Steamship "Warwickshire" for Marseilles. We were a party of Anglo-Indian and Burma and Ceylon residents homeward bound in search of health, and our physical condition and the sultry, heavy air of the tropics made us a sedate and subdued crowd. Our ship was splendid, with spacious decks for sports and games and also a delightful promenade deck, where games and children were not allowed. The cabins were large and cooled by electric fans, and we were most comfortable. I can thoroughly recommend the Bibby Line to brethren who travel between England and India or Burma. For seven days we were in monsoon weather and the seas were rough, but after passing Perim we were sailing in a sea of glass, and Kipling's lines:

"The Injun Ocean sits and smiles,
So calm, so sweet, so bloomin' blue;
There ain't a wave for miles and miles
Except the jiggle of the screw,"

were literally true. A head wind made the passage through the Red Sea enjoyable, while Socotra, the Dedalus, the Twelve Apostles and other reefs and islands, with their accompanying stories of shipwrecks and narrow escapes, illustrated by the hulls of lost ships, furnished cold chills and shivers enough to suit everybody. In the Gulf of Suez we passed three Russian transports and two cruisers bound for the far East, and thus we saw the beginning of the tragedy which is now being enacted in Manchuria. Through the Suez Canal



Colombo, Ceylon.

by searchlight is beautiful and fascinating, and Arabs on camels passing silently by bring up hosts of visions from "Arabian Nights," and Pharoahs and courts and Egyptian princesses seem a reality for the first time. The run of eighty-three miles through the canal takes sixteen hours and is interesting every moment. At Port Said we took on coal and stopped twelve hours. The fortnight on sea made us anxious to get ashore and everyone availed themselves of the chance. I knew of no more interesting place than the café of the Continental Hotel of Port Said. Arabs, Bedouins, Greeks, Indians, Egyptians, Africans of a dozen varieties form a resident population which, with English, American, French, German, Jap and Chinese tourists, make a conglomeration of nationalities that is hard to see elsewhere. As one sits and sips his coffee and smokes excellent *fresh* Egyptian cigarettes he is besieged by hawkers of stamps, scarabs, coins of Pharaoh, jewels of rare beauty (?) and curios of all sorts, "made in Germany," and the Port Said donkey boy or shop-tout is the rarest and most acute discriminator of nationality that I have met. Musicians, acrobats and jugglers add to the pleasure, and one can spend several hours most pleasantly. A visit must be made to the Arab quarter, the mosque, the drive along the sea, the Casino, where all play is crooked. A ride on one of "Bob Johnstone's" donkeys, a dinner of poor quality at one of the hotels, and one has seen Port Said, one of the wickedest and most fascinating cities of the world. Everyone buys cigarettes and Turkish Delight, and unless he knows, usually buys trash. At Port Said we were joined by the Egyptian contingent going home for the season. English civil and military officials and their wives—smartly dressed, rosy cheeked—they made us Anglo-Indians feel that our lot was a hard one, for we can seldom get home oftener than once in five years, and we are four weeks from the English markets and a year behind in fashions. There are no dentists in Port Said, but Alexandria and Cairo* are well supplied by men who are first-class and who get very good fees. The sail across the Mediterranean and through the Straits Messina and Bonnifacio was pleasant, and the vine-clad hills of Italy and snow-capped Aetna made lasting impressions on one's mind. Our midnight

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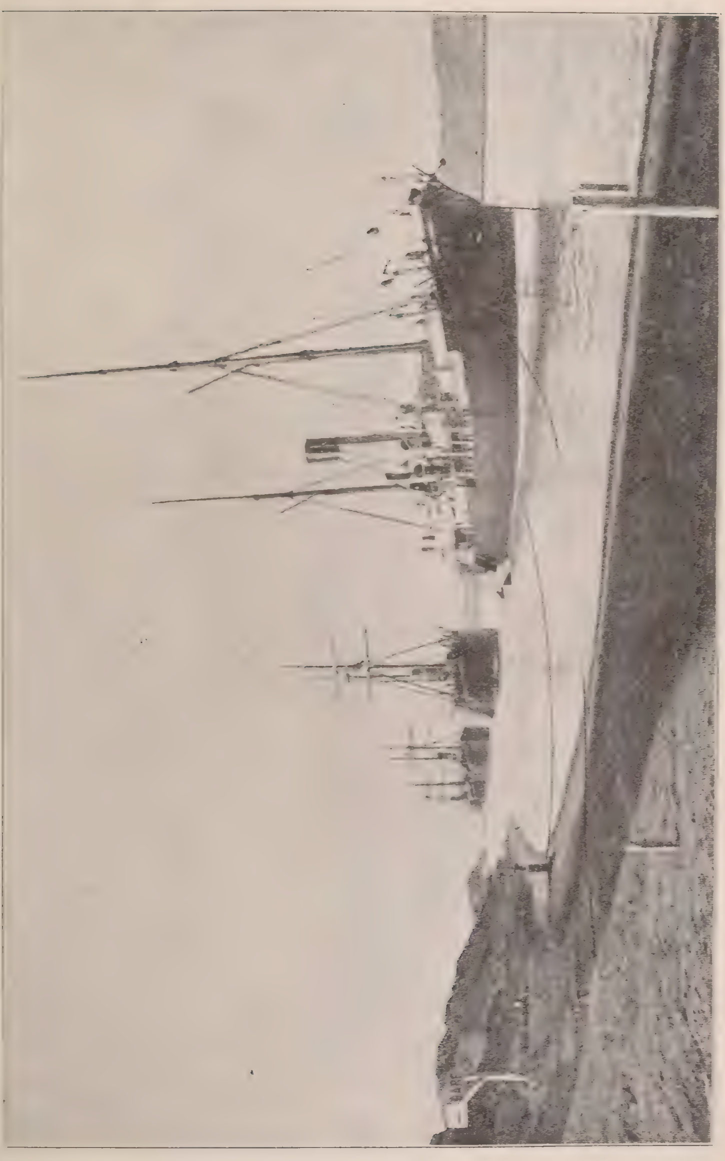
*See Horace Wyndham's article on "Dentistry in Egypt," page 970 of last month's Dental Review.—Editor.



The Suez Canal.

view of an eruption of Stromboli, the lighthouse of the Mediterranean, was glorious and worth a trip around the world for. On June 21st we sighted sunny France, but as the sea was rough we anchored outside the harbor of Marseilles, and the electric-lighted city, the rush of trains and evidences of western civilization made us more homesick than we had been for years. The next morning we went into the harbor, passing Chateau d'If, from which the Count of Monte Cristo made his wonderful and memorable escape. In due course we had passed the customs, said "Good-byes," and landed and arrived at the Hotel du Louve de la Paix, a hostelry well known as the headquarters of Oriental travelers embarking at Marseilles. You who live in Chicago and have Kinsley's and the Boston and Billy Mangler's to feed you, can you imagine what a privilege it is to sit down to a delicate, daintily served meal in this hotel, after shipboard fare which Mark Twain aptly describes "as plenty of good food provided by the Deity and cooked by the devil," or after Rama Swamy's culinary efforts in which he has strained your coffee through your yesterday's sock? Can you imagine how we Anglo-Indians appreciate French chefs and their efforts? The most striking thing about Marseilles is the sidewalks and the well-dressed, clean, respectable people walking along as though they were going some place—at least that is what always strikes me after the naked, black throng of Indian coolies and people who walk any place in the street and with a seeming determination never to arrive. I called on Drs. Kelsey, whom I have known for some years and whom it is always a pleasure to meet. Dr. Kelsey senior has been some thirty years in Marseilles and has a splendid practice. He and Mrs. Kelsey are Connecticut Yankees and have retained their accent, while the children, now young ladies and gentlemen, have the most pleasing accent and the characteristic politeness and charm of the French people. Dr. Kelsey's home is a true home, and lucky the man who shares its hospitality and comes under the genial and helpful influence of the good doctor and his wife. Two days in Marseilles sufficed to rest one, and the journey was resumed. Paris is reached by the P. L. M. in sixteen hours. The country traversed is splendid and to an American the farms are like market gardens, so well kept and trim are they. In Paris I stayed at the Hotel St. Petersbourg with some American

Madras Bank—Madras, India.

friends and settled down for a month of Paris, with all that that implies to a man who has been for three and one-half years in this "land of regrets." The privilege of renewing one's acquaintance with Drs. I. B. and W. S. Davenport, George Hayes, Jack da Silva, Younger and the other good fellows who so ably represent American dentists in this gayest of capitals is a rare one, and I soon found that dinners, luncheons and motor trips multiplied so that little time was left for serious work. But who is serious in Paris? Surely not the visitor, and while few men are busier or more serious during professional hours, none are gayer and more genuinely good fellows than "Billy" Davenport, Jack da Silva or George Hayes, as their friends familiarly call them, and those of us wanderers from far corners who know them all love them and remember with unalloyed pleasures the dinners at Drouant's and the stories and brilliant conversation of the "boys" from Paris. I remember with pleasure and satisfaction the rides through beautiful poppy speckled wheat fields, verdant woods, along perfect roads to some little rural restaurant a score or more miles from Paris, and the dejunér and the rest under the trees till time to speed back to Paris in Dr. Davenport's twelve-horse power Renault. I fancy that the ride will live

Place De La Concorde, Paris.

long in the mind of Dr. Snyder—now a portrait painter in Holland. drawing faces instead of teeth—and myself, for we had to sit on the back seats and hold on while "one of the boys" took a twenty-mile lesson, through a very hilly country. in driving an auto. I am ready to aver that he is one of the best dentists that Europe holds, and equally that he was then the worst chauffeur on the roads within fifty miles of Paris. Often I sit and muse over the good times had in Paris and I think of Noble in Hong Kong and Burnett in Montevideo, and wonder if they have as much pleasure in their memories of Paris and Paris' peerless dentists as I do. I found that professionally the men were very high in the scale. Jenkins inlays were used almost exclusively, and most perfect and artistic results were obtained. Cleaning teeth scientifically and thoroughly was done by at least four of them, and I then learned what *cleaning* teeth really means. These men *cure* pyorrhea, as I know from results obtained in my own mouth, while Dr. W. S. Davenport's system and method of applying bridges has been invaluable to me. It is surprising to know how few dentists in this world really clean teeth. I was asked by Drs. Davenport and Hayes to send them names of men in our leading cities who were careful in this department. I had no means of discovering personally, so consulted the dean of one of our greatest colleges and a man who is fully informed on most subjects, and he could name only two men in New York, one in Washington, one in Philadelphia and our own Robert Good in Chicago. Surely this is a great field of effort and, as I know, one profitable to both dentist and patient.

(*To be continued.*)

WHITHER ARE WE DRIFTING IN THERAPEUTICS?*

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO, ILL.

Before attempting to answer the query propounded in the title of this paper, I trust that I may be pardoned for indulging briefly in a few rudimentary remarks in defining certain terms used today in medicine.

The substances which are introduced into the body for various purposes may be divided into three general classes—aliments, poisons and medicines.

An aliment is any substance which, when introduced into the system, is capable of nourishing it and repairing the losses sustained by metabolism.

A poison is any substance which, when introduced into the body causes a disturbance in the normal condition.

A medicine is any substance which, when administered or applied, aids nature in readjusting the abnormal to the normal condition. Those substances which enter into the composition of medicine are called drugs.

In the earlier study of drugs, an effort was made to select terms which would suggest, as far as possible, the meaning for which the terms were used. As the study broadened, however, this effort only led to confusion. For instance, materia medica, literally, means the materials used in medicine, but the term is used today in a broader sense, and means the science which treats of drugs.

Therapeutics is the science of applying medicine to the treatment of disease.

The pharmacopeia is an authoritative work which, firstly, gives direction for the preparation, purification and preservation of medicines, and, secondly, establishes tests by which the identity, quality and strength of drugs may be ascertained. To prepare, purify and preserve medicine is the business of the pharmacist, but every dentist should be sufficiently conversant with materia medica to be able to test for the identity, quality and strength of those medicines used in his daily practice.

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*Read before the Chicago Dental Society.

Many students have been led to believe that the terms *action* and *effect,* used in connection with medicine, are synonymous. They are not, and should never be so considered. It is necessary to appreciate the difference between these two terms in order to understand modern therapeutics. From our clinical experience, we may know the *effect* of a certain drug, while its *action* may be wholly obscure. And since the trend of modern medicine is toward rational therapeutics, we must know the action as well as the effect of drugs when applied to the treatment of diseased conditions.

The term pharmacology was derived from two Greek words pharmacon drug, and logos science—science of drugs. This is what we now understand by the term materia medica. Pharmacology being restricted to that part of materia medica which treats of the action of medicines upon the tissues, organs and functions of the body.

The field of pharmacology is being rapidly developed. In fact, we now have good, well written textbooks which treat of scarcely any other phase of drugs except their action. In medicine the day of shot-gun prescriptions is a thing of the past. The development of pharmacology calls for the practice of mono- rather than polypharmacy. The modern physician now diagnoses his case and prescribes drugs because he knows which ones are indicated, and why. He does not prescribe a miscellaneous combination of drugs, many the action of which he does not understand, thinking and hoping that, perchance, one may effect a cure. This is modern medicine.

What is modern dentistry? We are proud of dentistry. Our pride is such that many are not contented to be called specialists in medicine, but claim, and perhaps justly so, that we belong to a true and distinct profession. We are proud of the progress dentistry has made in the past. With pleasure we refer to the rapid strides made in porcelain art and many other phases of dentistry, but can we justly be proud of the progress made in dental therapeutics? I am forced to answer, no.

In that famous debate, when Daniel Webster arose on the floor of the Senate of the United States in reply to Hayne, who seemingly had talked on every subject except the one before the House, he said: "Mr. President: When the mariner has been tossed for many days in thick weather, and on an unknown sea, he naturally avails himself of the first pause in the storm, the earliest glance of the sun, to take his latitude and ascertain how far the elements have driven him from his true course. Let us imitate this prudence, and, before we float farther on the waves of this debate, refer to the point from which we departed that we may at least be able to conjecture where we now are. I ask for the reading of the resolution before the Senate."

It is a pleasure to read the history of our profession and learn that the earlier practitioners did not neglect the field of therapeutics, and by their efforts to develop this all-important science anesthesia was given to the world. Today, when I read the various dental journals and find that our literature contains so little on scientific and practical therapeutics and so much on subjects of far less importance, valuable though they be; and when I notice that there is scarcely a day passes that the mail does not contain circulars heralding the remarkable properties of some new "abscess cure," "pyorrhea remedy," etc.; and when in conversation with many in the profession I find that they are pinning their faith to these so-called "cures," and are not only using them but are ever ready and anxious to give testimonials, I can not but feel that we, too, like Webster, should imitate the prudence of the mariner and stop long enough to observe that we are rapidly drifting away from the correct and scientific method of treating the various diseased conditions of the mouth.

The recognition of this fact is not only unpleasant for our profession, but is extremely dangerous. It matters not so much if I do not know the constituents of the various porcelain bodies, the exact composition of the alloys, cements, etc., used in dentistry; but if there is any one thing I want to know—yes, if there is any one thing I *should* know—it is the nature of the remedies used in the practice of my profession. No dentist is justified in using any preparation of drugs, the exact composition of which he does not or can not know without resorting to chemical analysis; and, in case of malpractice, no court would clear the dentist against whom it could be proven that he did not know the nature of the remedies he had used. The use of any such preparations is but to acknowledge our ignorance of materia medica—a science which we are supposed to know—and can have but one effect, and that is to lower the standard of dentistry.

I can not in this brief paper expose the fallacy of all these so-called "cures," nor am I going to attempt to do so. The preparations which seem to be most prominently advertised at the present time are "sure abscess cures." Your attention will be directed to these.

Before doing so, however, I desire to emphasize the fact that many dentists are expecting entirely too much of drugs. In other words, teeth are often over-treated. All that should be expected of medicine in therapeutics is to assist nature in the healing process. This is the meaning gleaned from the definition, "A medicine is any substance which, when administered or applied, aids nature in readjusting the abnormal to the normal condition." Given with any other object in view, the substances usually classed as medicines become foods or poisons, according to the manner in which they are used.

I agree in the main with Dr. W. H. G. Logan when he says: "In reference to the treatment of putrescent root canals, we treat them too much with medicine and do not pay enough attention to the mechanical part of the work. Very frequently a filling is inserted with strong drugs beneath and the action of the drug or drugs is more direful than the putrescent condition we are trying to control." I might not agree with the doctor when he says, "we treat too much with medicine," but I certainly agree with the thought he meant to express, viz., that we treat too much with *poisons*. When any substance retards rather than assists nature in the healing process it ceases to be a medicine and properly belongs in the class of poisons.

I want to emphasize the statement that we depend too much on drugs and not enough on the mechanical or surgical part of the work.

Now, with reference to these "abscess cures." In the first place I will refer briefly to a published and much copied article on one of these highly lauded preparations, in which the writer says: "The originator of the formula worked for more than a year before he succeeded in getting the proportions just right and then he tested this preparation for more than two years before he placed it on the market. It was with some misgivings that the writer tried this preparation, for so many so-called 'sure cure' preparations had been used with questionable results. Thus far experience has proven this preparation entirely satisfactory, and it can be used with perfect safety and always with the best results."

This writer either had exceptional success in using the preparation in question, and thought he was benefiting the profession by publishing it, or else he had other motives in writing the article. The fact that he admits having tried "many so-called sure cure preparations with questionable results" is evidence that he is unfamiliar with the subject of materia medica. Whatever his intentions may have been, such statements that this preparation "can be used with perfect safety" do a great deal of harm.

While I have never felt the necessity of using any of these preparations, and have never used the one in question, I do know of many instances where it has been used with unsatisfactory results, and one case in particular where it set up such a severe inflammation that it was necessary to extract the tooth. Then, too, let us not be deceived by the statement that "the originator worked for more than a year before he got the proportions just right," implying that the value of the preparation depends upon *definite proportions* and the *method of compounding.* It is unnecessary for me to show the fallacy of such a statement to this intelligent body. I will only say that I do not believe in the possession of the supernatural ability in compounding drugs.

The dental profession asks no manufacturer for the proportions of their preparations. They only care to know that which they *should know,* to be able to make an intelligent application—the ingredients of the mixture. But it is realized at once that with the ingredients known anyone with average intelligence could work out a good formula. Therefore, success depends upon misleading the profession. I trust that I do not speak too plainly upon this subject. My heart is in it, and I mean just what I say. You know that I am right.

There are certain physical and chemical laws which govern the compounding of drugs, and there are certain physiological laws which govern the amount of each ingredient entering into any mixture to be used as a medicine. Let it be understood, then, that the only really *scientific method* of compounding drugs is to have a correct knowledge of physical and chemical laws, and their practical application in pharmacy and therapeutics. While all this is to be appreciated, we must not think for a moment that a mixture of drugs would be useless, so far as the therapeutic application is concerned, should we fail, in compounding the mixture, to get the proportions *just* as the originator of the formula suggested.

Barnum said, "The American people like to be humbugged." It would seem so when you think how easily educated people can be deceived with medicine. Read the list of testimonials for the various patent preparations. From whom do they come? Is it the lower class? No. The leading merchant, the eminent lawyer, the noted clergyman, and, surprising though it is, in some cases the self-styled prominent physician and popular dentist. There is, and always has been, a mythological *something* associated with drugs which people, as a rule, seemingly do not care to dissociate, and it is because of this fact that patent medicine concerns flourish so well.

It appears useless to try to educate the masses along this line, but we, as a profession, at least, should be with that class to whom Lincoln referred when he said, "You can't fool all the people all of the time."

Who, then, is responsible for this age of secret formulas? Is it the firms who manufacture these preparations? Not by any means. Their business is perfectly legitimate. It is the practitioners who use and thereby encourage the manufacture of, in most cases, well known remedies sold under new and fictitious names.

I may be censured for criticising the use of these preparations and not offering any substitute method of treating these conditions. This I would gladly do were I to believe that the dental profession was so lame in materia medica as to need such suggestions. I do not so believe.

In closing, then, permit me to say that we should not neglect the field of dental therapeutics. Let us keep abreast with the times in all phases of dentistry; and remember that in the treatment of any diseased condition better results will be obtained by the proper use of a little medicine and a great deal of good, common sense.

IMPROVEMENTS IN PROFESSIONAL MEANS AND METHODS DURING THE PAST DECADE.*

BY J. H. PROTHERO, D. D. S., CHICAGO, ILL.

As the years roll by the development and progress of the world's arts and sciences become more marked and apparent. When observed year by year the advancement has not been remarkably rapid, but when reviewed by centuries the results are startling in the extreme.

Surprises await us on every hand, either in the form of discoveries or in the new application of old and well-known principles. The history of progress of the past century will be the history of this one when the time comes for it to be written, in this respect, that things which in one century seemed improbable or impossible, or were not even conceived of, are recognized in the succeeding one as commonplace and necessary to every day life.

The human mind can not at once unlock the secrets treasured up in the universe, or in the bosom of Mother Earth, nor can the intellect, except with time, patience and perseverance, penetrate the veil which hides the unsolved mysteries in the arts and sciences. It is only by constant application and research by investigators in all departments of science and industry that the nuggets of golden truths are washed from the dross, tried by fire, and gathered into the great common treasury of knowledge.

A review of the last hundred years of progress in the arts and sciences, although fraught with the deepest interest, would require volumes to contain and a lifetime to write it. A review of the progress of our profession, covering the same period, would require more time and space and greater descriptive ability than the writer can command, and therefore brief mention only will be made of some of the prominent points of interest that have come before us in the past few years.

The World's Dental Congress, soon to be held in St. Louis, recalls to mind the Congress of similar character held in our own city a number of years ago, and which was conceded to be the greatest, most successful and beneficial meeting of this character ever before held. The program consisted of the presentation and discussion of scientific and professional papers and clinics of great and practical importance to the dental world. Without doubt the interest and enthusiasm there displayed has been directly responsible for much of the advancement in, and many of the improvements that have accrued to, the dental profession during the past decade.

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* Read before the Chicago Dental Society.

At a banquet given by the American members of the Congress to their friends from abroad, the late lamented Dr. J. A. Swasey, as toastmaster, gave expression to the following sentiments, which were heartily endorsed by those who participated in that meeting: "The World's Columbian Dental Congress soon will live only in memory and history, as one of the greatest meetings ever held by the dental profession. The scientific papers, the practical exhibitions, the intelligent discussions of this meeting will be felt throughout this generation in every land where dentistry is known, and many things have been said and done that will pass into the curriculum of dental education and be taught to generations of people and dental students that are yet unborn."

The truth of this prophetic statement has already been partially realized, for dental educational systems owe much to the grand work of the World's Columbian Dental Congress.

The system of dental nomenclature, presented by the committee on that subject, through its chairman, Dr. G. V. Black, is practically recognized and accepted by the profession as embodying the simplest and most logical terms for practical use. Previous to, and even for a time after, the presentation of this report, a greater or less degree of laxness in the use of technical terms was observable in dental literature and discussions, but this has gradually disappeared until at the present time great improvement and much uniformity in this respect is noticeable. The fixing of a standard of rational scientific terms has been of incalculable benefit to the profession, not only as an aid to the teacher in elucidating his subject to students but to practitioners as well, enabling them to carry out both operative and prosthetic procedures accurately, and to impart an intelligent description of their methods to others.

The valuable papers and discussions on orthodontia created widespread interest, and were so extensively copied and read that they are, to some degree at least, responsible for the very thorough manner in which this subject is taught in the schools and practiced by members of the profession today. The value of fixed regulating appliances over those easily removed by the patient has been established beyond question by the results attained.

Much interest was manifested in the electrical specialties and appliances then on exhibition, and there is no doubt that the interest there shown in the field was largely responsible for many of the improvements and new inventions we have today. Compared with similar clinics of this day, even those of local societies, the exhibition was very limited as to number of clinics and varieties of work and appliances shown. As an illustration of this point I will quote from the report of the committee on clinics:

"Dr. B. C. Russell, Keene, N. H., demonstrated a porcelain inlay. Right upper central incisor, labial cavity, which was prepared as round as possible. The porcelain was then selected a little larger than the cavity and placed in a mandrel of the engine, by which means it was fitted accurately. The porcelain was then cut so as to project slightly, cemented in place and dressed to conform to the labial surface of the tooth.

"Dr. W. H. Taggert exhibited porcelain crowns baked on platinum.

"Dr. A. E. Matteson exhibited a porcelain furnace.

"The Detroit Dental Manufacturing Company exhibited a porcelain furnace and low fusing continuous gum body."

In this connection it might be stated that at that time the electric porcelain furnace had not been invented and the difficulty of securing uniform results in inlay, crown, bridge and continuous gum work was so marked that but few were engaged in this field. Today we have a dozen or more different forms of neat, compact, and I might say, ornamental electric and gasoline furnaces, and while none of these is entirely free from its defects, any one is far superior to the cumbersome coke, oil or gas furnace then in use, for they not only economize in space as well as time, radiate less heat, but reduce an otherwise unpleasant task to the minimum.

The production of porcelain bodies and enamels in numerous varieties of shade and varying fusing points has also encouraged the development of dental ceramics in a marked degree. Since the various porcelains fuse at different temperatures great care must be observed in vitrifying them, to secure the greatest strength. Recently, however, a new furnace, with a pyrometer attachment which indicates the exact fusing point of any of the standard bodies, has been placed at our disposal, thus simplifying to a still greater degree porcelain manipulation.

Dr. Cunningham, of Cambridge, England, gave a clinic, not indicated on the program of the Congress, of a low-fusing porcelain composed of glass, jewelers' enamels, and dental porcelain body. It was recommended more particularly for modifying the shades of artificial teeth rather than as a basis for artificial dentures. Under temperature necessary for high-grade soldering it would not retain its color.

The manufacturers now furnish both oil and water color paints for the purposes named, which are stable under high temperatures.

From the limited number of clinics it might be inferred that the porcelain art was not considered worthy of attention by the profession generally. Such, however, was not the case. A great many were interested in and a few were experimenting with this material, but for reasons stated, the latter had not acquired the dexterity and experience essential to complete success. They were the pioneers, however, and deserve great credit for their persistent application under the adverse conditions that prevailed, and to them we owe in a great measure the many classes of porcelains, the improved furnaces and the various methods of porcelain inlay, crown and bridge work now extant. They have also solved many of the problems relative to the strength of platinum trusses and of porcelain, the locations in and conditions under which this material may with safety be used.

Dr. Bonwill's paper on "What Has Dentistry to Demonstrate Against the Hypothesis of Organic Evolution?" while introducing some new ideas, consisted largely of material he had already given the dental profession, and created much discussion.

His theories on the geometrical construction of the human jaw and the occlusion of the teeth have set prosthetists to thinking and experimenting, and already much improvement in "anatomical articulators" is apparent, while noticeable efforts are being made to secure better occlusion in the construction of artificial denture.

Just a short time previous to the Congress, Dr. Black outlined the methods of cavity preparation, and the rules which he laid down have been steadily growing in favor until now with a few slight modifications, perhaps, they are accepted and practiced by very many in the profession.

The value of the essential oils as antiseptics in the treatment of teeth and of many other drugs of recent origin have been studied by original investigators and the valuable results of their efforts freely given to the profession.

The painless method of dental practice has received much attention, cataphoresis, improved local anaesthetics and pressure anaesthesia being offered as valuable adjuncts in accomplishing the desired results.

Studies of the behavior of dental amalgams under different subjective treatments resulted in the discovery of the proper proportions of metals to use, the correct method of combining them, and the manner of tempering alloys so as to control shrinkage and expansion. The value of the researches in this field have proven of incalculable benefit to the profession.

The dental profession has just cause to feel proud of its advancement and progress in the past decade, not only on account of improvements in means and methods, but because of the recognition it is receiving from its sister, the medical profession, and from the world at large, who recognize in our profession the essentials of success, namely, independence, growth and scientific attainment.

PROCEEDINGS OF SOCIETIES.

AMERICAN DENTAL SOCIETY OF EUROPE.

At 10:30 a. m. on Monday, April 4th, the General Meeting was resumed, the first business being the discussion of Dr. McBride's paper on "The Modern Development in Orthodontia."

Dr. A. C. Davis (Berlin)

In opening the discussion, said that long ago he had given up all hopes of ever accomplishing much in the field of Orthodontia, so complicated seemed the methods involved, and the anxiety and worry of the cases, and he was always experiencing a desire to turn his cases into better hands than his own. He was somewhat acquainted with the methods of different orthodontists, and when he heard of the work which was being done by Dr. McBride he thought to himself that if good results were secured the doctor must certainly used in his patient's mouth jack screws, traction screws, springs, and bands to such an extent as to excite the envy of the mechanical engineer. About two weeks after his arrival in Germany he made a trip to Dresden and had the pleasure of meeting Dr. McBride and observing a demonstration of his methods, and since then he had made four other trips to Dresden, during the last of which he had an opportunity of standing by Dr. McBride's chair an entire day and observing nineteen cases of regulating, some just beginning, some in an intermediate stage, and some wholly completed. He was not only surprised at the work, but very gratified. It was a rule in one of the Medical Societies of Chicago that a member should never compliment an essayist if he could avoid it, but in the present case he found he was bound to pay a compliment to the essayist, as he had not been able to find one single criticism to make upon Dr. McBride's work. He had been taught in his early days that molars could not be moved, but simply tilted. Another thing he was taught was never to regulate a set of teeth until all the permanent teeth had erupted. Both those lessons had been proved to be wrong, for he had seen cases where molars had been moved, and moved without tilting, and he had seen cases which had been regulated before the bicuspids or cuspids had erupted. That was a surprise to him. His experience might not have been very great, but he prided himself on coming into contact with the best men in the dental profession, no matter whether in America or Europe. It was a mistake in banding teeth to wait until all the teeth had erupted. Usually a band or cap was made for the first and second permanent molars, and soldered together, and the teeth were pushed in the direction desired and they were regulated one at a time. Naturally with two strong molars soldered together it would be impossible to move them by the use of one bicuspid or cuspid. Another mistake in orthodontia was that too much attention was paid to personal appearance, the dentist trying more to please the patient by a good appearance than to obtain natural occlusion. He had known of a college friend who had had his teeth regulated by an eminent specialist in America. The retaining appliance was placed in position and he wore it for a year and a half, and his personal appearance was greatly improved. At the end of that time the appliance was removed and his teeth started to go in the same direction in which they first stood. It was a puzzling case not only to the man who had gone through the operation but also to the orthodontist. Looking back upon that case, he believed now that the reason the teeth moved after they had been regulated was due to the fact that not enough attention was paid to normal occlusion. It was a new method to him to place the mesial buccal cusp of the upper permanent molar in position in its normal occlusion so that it would lock in the buccal groove of the lower first molar, and with this key to the dental arch the bicuspids and cuspids could not help but erupt in their natural position, unless it was bucally or lingually, in which case they could be easily placed in position. Dr. McBride's appliances were so simple that it was almost impossible to comprehend their usefulness. Not only could the upper entire arch be forced distally, but the entire lower arch could be forced anteriorally; and the action of the rubber bands would assist in elongating the bicuspids and molars in cases where the anterior incisors below struck the gum on the inside of the upper incisors. One side of the arch could be forced mesially or distally at a time. One thing he was inclined to criticize was the use of plates for the retainers, but he believed now it was the best method of retaining. They could be removed and cleaned, and they gave perfect control not only over the teeth individually but over the entire arch, and he was a firm believer in contact points. whether in orthodontia or in filling the teeth. It had to be remembered that teeth had to be separated to admit the thickness of two bands and a little solder. and when that retaining appliance was removed the teeth were left unsupported by not being in contact with the tooth at the side. Although the wearing of a plate must be disagreeable, he believed that that method of retaining could not be improved upon, and he felt very grateful to Dr. McBride for placing before him a means of regulating teeth without trouble or anxiety.

Dr. W. Sachs

Considered that his experience was a very wide one, as he had been regulating teeth for over thirty years. Generally speaking, he had been successful in his work, but he was bound to confess that the methods he employed were far more complicated and more disagreeable, both to himself and the patient, than the method now shown. Dr. McBride's system seemed to be so simple as to be applicable to almost any case. He had seen cases which Dr. McBride had regulated and they had astonished him. He was sincerely convinced that the method would become the method of the future and it was the most perfect he had seen during thirty-two years of practice. He could only advise every dentist to try it. It was a very difficult thing to throw away old methods, but in his opinion Dr. McBride's simple and effective method was far superior to anything that had been used previously and should be tried, both for the benefit of the patient and of the operator.

Dr. J. W. Gale

Asked Dr. McBride to consider a case where one parent, perhaps the father, had very broad teeth and the mother possessed very narrow teeth. It had been noticeable to most observers that sometimes in one jaw the dental characteristics of the father could be observed and in the other jaw like characteristics of the mother. Taking a theoretical case, a patient with the upper jaw possessing very broad teeth and the lower jaw very narrow ones, he desired to ask Dr. McBride whether he found any trouble in connection with the regulation, and whether after the teeth had been placed in position so they were properly antagonistic the case would remain absolutely correct. If the interlocking was perfect there were bound to be spaces between the lower bicuspids or molars and it was possible there might be a tendency for the upper jaw to take an irregular position from the fact that the under teeth would not make an absolutely perfect retainer.

Dr. C. J. Monk

Asked whether there was any age limit at which Dr. McBride thought his system would have little or no chance of success.

Dr. W. Mitchell

Concurred with the remarks of Dr. Gale and pointed out another phase, namely, cases where the child had the jaw of one parent and the teeth of the other. Those were the cases which sometimes caused considerable solicitude. When he first started practicing in England he had for a patient a very pretty little Irish girl who had a perfect set of teeth, and he had to consider the possibility of placing them in their correct position. He did not wish to sacrifice any teeth, believing it would be a mistake. He got them into absolutely perfect occlusion, but thought that he had never made a greater mistake than when he did not take out four teeth. He saw the young lady years afterward and the only deformity was the girl's mouth; there were too many teeth for the features. The fact could not be escaped from that she had a larger set of teeth than naturally belonged to her. Therefore, in cases in which the jaws of one parent were to be found combined with the teeth of the other, he thought sometimes judicious extraction was necessary for proper correction. Of course, judgment was specially necessary as it would be difficult to foresee how the child would develop in later years. It required the greatest discrimination to meet such cases successfully, both from a practical standpoint and from an artistic one.

Dr. C. Rathbun

Mentioned that Dr. Carwardine, before his death, took in hand a case of regulating and succeeded in getting a perfect arch with all the teeth in position, but it was the "toothiest" mouth that was ever seen. The parents admitted that the Doctor had done wonders, but pointed to the girl's mouth. He, Dr. Rathbun, spent a great deal of thought over the matter and finally decided to take out the first bicuspids above and bring the teeth back with Angle's appliances. But even now she has too many teeth. What was to be done in such a case? They were large teeth, but they were in perfect line. Before the bicuspids were extracted the models looked very well indeed, but the face did not, and there were too many teeth now, even with the first upper bicuspids removed and with the teeth back and in their present position. The only thing he could see was that he ought to have taken out the lower bicuspids as well. It might have been an extreme case, but it was the kind of case which was frequently met with.

DR. H. J. MOORE

Said he would welcome a few hints from Dr. McBride as to the hygiene of the mouth during the process of regulation. Sometimes there was much inflammation, and he should like to know how Dr. McBride managed to allay it.

DR. KIRK DAVENPORT

Said the point which Dr. Moore had brought forward was of vital importance. With any plate, unless the patient had had a thorough drumming on the point, the brushing was not done properly, and as Dr. McBride obtained his wonderful results almost in a night, he had not had his patients under his care long enough to get them thoroughly imbued with the importance of cleanliness. In regulation cases sometimes there was such inflammatory condition of the gums that it was difficult to find the teeth at all. He had had swollen, bleeding surfaces, and after long treatment a case would appear to remain almost as permanent tumors and engorged conditions. Another point he wished to speak on was in connection with the retainers. Dr. Dixon and his associates in Edinburgh had done some splendid work in regulating and of late he had found cases coming into his hands from them which had been fitted with some very beautiful retainers. Instead of the rubber used by Dr. McBride there was a network of wire, a kind of grid going across the palate with different lines, getting the contact on the teeth wherever it was required. The wire was made by a firm in Sheffield and it was almost as springy as steel; in fact, the elasticity was wonderful. He was aware that it was impossible for him to discuss the paper, for the results were too good to criticise, and he could only content himself by expressing appreciation.

DR. RATHBUN

Asked how Dr. McBride brought the regulation teeth in line and obtained expansion of the contracted arch.

Dr. W. A. Spring

Considered the prime value of the paper was its high ideal, and he thought the Society should congratulate itself upon having so stanch an advocate for the preservation of all the teeth and the inventor of a method by which a normal perfect occlusion was secured. The subject was well thrashed out in America years ago. There was a time when many advocated the extraction of the first molars, and the result of fighting it out he believed was that most men in America were advocates for the retention of all the teeth. A very able paper, accompanied by some beautiful models, was presented to the Society a few years ago, which proved that attractive results might be secured with the extraction of the first permanent molars; but he thought that the paper did harm in some ways, because there were some people who said that somebody believed in extraction of teeth and went on extracting teeth without very much consideration. As the essayist had said, one of the most serious things was the attempt to regulate teeth when one or more teeth had been extracted by a previous dentist. He believed that a perfectly occluding set of teeth in a normal position, if kept in cleanly condition by the patient, would look attractive in any mouth, even though the teeth might be large.

Dr. N. S. Jenkins,

Referring to that part of the essayist's paper where he spoke of orthodontia as being a specialty of dentistry, said that ever since Dr. McBride had done him the honor to come to Dresden and practice with him he had had that fact more and more impressed upon him. He had seen the growth of Dr. McBride's methods, from those which were in use a few years ago, up to the wonderfully exact, perfect and easily managed method now before the Society, with the greatest admiration. What made a good orthodontist? He might be an artist and yet he might not be a good orthodontist. At the back of it there lay that happy combination of faculties, that sense of proportion which caused good judgment, that which in some form was called genius, and it was that which men like Angle and McBride possessed.

Dr. McBride,

In reply, assured the members that it had been a great pleasure on his part to watch the development of the wonderful science of orthodontia during the past few years. It had now become so simple that it was difficult for many members to understand its real foundation. With regard to retaining appliances, he was not an advocate of plates of any form for the retention of teeth, for unless they were scientifically constructed, possessing hygienic qualifications, they would sooner or later cause injury to the teeth. He used a form of retainer simply in the case of emergency. As stated in his paper, many of his patients came to him from long distances, and if he placed a device in the mouth for the retention of the teeth and anything went wrong, unless such patients were within the reach of an orthodontist they would fall into hands not sufficiently skilled to reproduce the normal conditions of the retaining appliances. It was for such patients that he made his plates, and by presenting them with duplicates he could send them off with safety, giving them the necessary instructions as to cleanliness and the hygienic conditions of the mouth. Many of those cases he had seen in subsequent years and had been very much pleased with their condition. It had been only within the past few months he had used a new form of retaining plate, and even now he thought it might be greatly improved, and he was very grateful to Dr. Davenport for the suggestions he had made relative to such improvement. In cases directly under his observation he did away with plates entirely, using some simple device upon the molar teeth that accurately held the teeth in normal relation and prevented any abnormality in the relation of the dental arches. He did not wish to be misunderstood; he was not an advocate of plates in the full sense of the word. The plate he was using did not come in contact with the lingual surface; it was cut away in order that the teeth might settle down into their proper position and that the occlusal plane of each and every tooth might occupy its normal position with regard to its antagonist. The lower plate was also constructed upon the same principle; it was cut away from the teeth and there was only a small point of the plate resting upon the lingual surface of the central incisors. It was not necessary even to have that point of projection, except in cases where the central incisors had been rotated, or it was necessary to retain them in their forward position. In cases where there had been superior protrusion of the upper arch it was not necessary at all to allow the plate to come in contact with any of the anterior teeth. If anything happened even to the duplicate plate, any dentist, no matter how inferior his skill might be, would be able to repair it. With reference to the characteristics of the parents being displayed in the abnormality of the jaws, he did not believe himself that nature made such great mistakes. What was thought to be a small maxillary either in the upper or lower jaw was invariably found to be due to an arrested development of the alveolus caused by the mal-position of the teeth in the arch. From his experience he thoroughly believed that if those teeth were placed in their normal occlusion nature would subsequently develop the alveolus so that there was a normal relation of the dental arches. As to the age at which he would correct such mal-occlusions, he would say as early as possible. As early as possible he corrected all cases where there was abnormal relation in the occlusion of the first molars, and he had corrected many cases where there was only present the first molars and the incisors. The earlier in life such teeth were corrected the better. He had adjusted the appliances on cases that had been so far advanced as twenty-eight or twenty-nine years. He had one under operation now in a lady of twenty-eight or twenty-nine, and the results were excellent. Dr. Rathbun had related a case in which he had extracted the bicuspid teeth subsequent to the correction of the mal-occlusions by a colleague and moved the six anterior teeth distally. The fact was that the colleague who regulated the teeth formerly did not establish normal occlusion; otherwise it would have been impossible for Dr. Rathbun to extract the bicuspid teeth and still possess room for the retraction of the six anterior. As for the hygiene of the mouth during treatment, about once a week he cleaned the teeth thoroughly himself, as it was not difficult to remove the appliance and clean all the teeth, excepting those on which the bands were adjusted. He also prescribed for the patient a highly antiseptic tooth powder and mouth wash and thoroughly instructed him in their use. With regard to the expansion of arches and bringing the teeth into the line of occlusion, that was the only work that had to be done in connection with the correction of the seemingly difficult and protracted cases. The chief success in the treatment of all mal-occlusions of the teeth was to so form the expansion arch that when all the teeth had been brought in contact with the arch a normal dental arch was created. By adjusting the normal dental arch in position, spaces existed in various positions in the mouth and all that it was necessary to do was to bring the teeth in contact with that arch, both upper and lower. While that simple operation was being done, the elasticity of the rubber bands was correcting all other forms of abnormality in the mouth. It was the exception rather than the rule where that was not the true facts of the case. If it was necessary to expand the arch in the posterior region all that had to be done was to straighten the wire, adjust it in place and leave it to do the rest. In cases where it was necessary to contract the arch in its posterior region, by bringing the ends of the wire arch together, it would do the work.

Dr. J. W. Gale

Asked whether, supposing the front teeth were shifted round to the right or to the left and the lower teeth were not broad enough to thoroughly lock the articulation, was there not a tendency to return to the old position? It might be that Dr. McBride maintained that the proportion was always correct between the upper and the lower teeth with regard to their diameter.

Dr. McBride

Said he had never seen any case where there was not a normal relation between the teeth in the same mouth.

Dr. Gale

Asked whether he had seen spaces between the lower front teeth in an absolutely articulated arch.

Dr. McBride

Said he had. When spaces were found between the lower teeth the spaces were also found in the upper teeth as well.

Dr. W. Mitchell

Said there were cases frequently found where the second bicuspid was much smaller than the first and the lower ones were also much larger, and he desired to know how perfect occlusion was obtained in that case.

Dr. McBride

Said that if the normal relations of those teeth were brought about and the occlusion planes locked there was no question as to the result of the operation. The teeth could not move from those positions. With an abnormal condition of that kind there might exist a small space in the arch in which the abnormal development of a tooth might exist, but normal relations could be brought about exactly in the same way.

Dr. W. Mitchell

Said there might be a condition which was the reverse of that mentioned. Instead of having the second bicuspid occupying its normal position, there might be a smaller tooth occupying the space which should be occupied by a larger one, and consequently one of the keystones for making a complete arch was in its wrong place, so that the adjustment of that arch could be never quite perfect. He contended that was one of the modifications where occasional extraction was required.

Dr. McBride

Said that was a very rare exception. He did not believe that a slight abnormality in relation to the bicuspid teeth would seriously interfere with the treatment of abnormal occlusion. He had never seen a case that had been a cause of embarrassment to him.

Dr. Lawley York

Thought that Dr. McBride had misunderstood Dr. Rathbun when he said that the first bicuspids had been extracted. It appeared to him that what was meant was the final result, the appearance and not the occlusion of the teeth. Dr. Rathbun had said that he got the teeth back, but the girl had a larger mouthful of teeth than she had before, and he (Dr. Lawley York) accounted for that by believing that in bringing the arch back he had merely flattened it and had a flat surface of teeth to look at.

Dr. Rathbun

Said the upper teeth were much larger than the lower. When he first saw the case all the upper teeth were in position in a normal shaped arch and the lower incisors had been brought out to try to correct the over-hang of the upper. The occlusion was good. He took out the upper first bicuspids and brought back the six anterior teeth, and also let the lower incisors come back. He did not say that the thing was worse then, but that even then it had a distinctly unpleasant effect.

Dr. Lawley York

Said that was the point he was trying to make. It was not the occlusion; it was merely in bringing the teeth back they were flattened, and there was a flat row of teeth instead of the arch which was previously there.

Dr. Rathbun

Said the arch retained the same shape as before.

Dr. McBride

Said that had a perfectly normal occlusion of the teeth been established before the teeth were moved by the former treatment it would have been better. He instances a case where, after treatment, the patient had a remarkable display of teeth, but in a year and a half subsequently there was perfect normality in the expression and contour of the face and in the dental arches.

The next paper was on "Dental Uses of Nervocidine," by Dr. F. Aguilar.

DISCUSSION.

Dr. E. D. Barrows

Said he had used Nervocidine on two patients, one being a girl of about fourteen years of age who had very sensitive teeth, so sensitive that he could not touch the cavities. He applied the smallest possible quantity of Nervocidine on a pellet of cotton to two mesial cavities of the centrals, and the patient went home and suffered frightful pain. Her father, being a physician, telephoned to him, but as he happened to be out of town the father removed one of the fillings, which was sealed with Fletcher's artificial dentine, and the pain stopped. The next day the patient came to him and he removed that which remained and found the anesthesia complete. He excavated the cavity and filled it, with satisfaction to himself and to the patient. The other tooth was very sensitive indeed. The next day he read an article in a German dental journal to the effect that if Nervocidine were mixed with guiacol and cocaine the pain was very much lessened. He took a third of each and applied it to a first lower molar, which was just as sensitive as the centrals, and left it in from ten in the morning to half past three, and he was able to excavate not only the coronal cavity, but a buccal cavity, without any pain whatever, and at the next sitting filled the three cavities. The patient took no notice of the engine and the operation was a complete success.

Dr. Sachs

Asked whether Dr. Barrows had since found any decay of the pulp.

Dr. Barrows

Said the patient had told him that she had had a certain sense of numbness in the teeth at certain times, but nothing to bother her.

Dr. Sachs

Said it was an interesting and important question to find a substitute for arsenious acid. He had tried Nervocidine in about twelve or fourteen cases, but had done away with it entirely. His experience was that, however carefully the Nervocidine was used, it often caused the most severe pain after its application to exposed pulps. The pain caused by arsenious acid was not caused by the acid itself, but by the pressure of the acid, and if that pressure was prevented there was really no pain. With Nervocidine, when the pulp was extracted a very severe bleeding followed, which could not be overcome in one sitting. In one case he had failed to overcome the bleeding in two or three sittings after extracting the pulp, a matter which was very annoying, both to the operator and to the patient. A German doctor had lately published a number of cases in which he had tried to apply Nervocidine in order to make the tooth less sensitive, and he said that the pulps lost their vitality four, six or eight months later, and therefore he would not use it again. Professor Schäfer, of Vienna, had also had a great deal of experience, having used it in 400 cases, but his results had been rather worse than with arsenious acid. Yet another professor in Germany had used it with the best result. It was a question that required to be settled, and he hoped in a year or two a more definite opinion might be pronounced upon the matter. For his own part he should never use it again, and would not advise any one to use it.

Dr. W. C. Bödecker

Said he had used Nervocidine in about eight or ten cases, and he had not had anything happen which might he said to militate against its use, and it certainly did produce anesthesia in the dentine. The only thing he had found was that in one case he watched the teeth carefully and noticed that when sensation returned to the teeth it returned a little too pronounced, and the pain lasted for about two weeks, and he had ultimately to take out the pulp. He used it with Fletcher's, and if it was pretty near the gum and the

Fletcher's came in contact with the gum it was likely to produce bad inflammation. Whether, as Dr. Sachs seemed to think, later on the teeth might die he did not know, but up to the present he could not say he had very much against the drug, his experience being more in its favor than against it.

Dr. W. Mitchell

Considered from the remarks that had been already made Nervocidine might be a drug which, in combination with others, might possibly be of considerable service in controlling sensitive dentine. It was, however, an agent that was almost a paralyzer, as shown by the amount of hemorrhage spoken of and the difficulty of controlling it. It seemed to be a persistent anesthetic, and therefore must be more or less of a paralyzing agent. With regard to the tendency to cause trouble at the gingival margins, which Dr. Bödecker had spoken of, it was just possible that its combination with the menstruum with which the cement was prepared might have caused the formation of a different compound. He did not understand whether it was mere congestion or a sloughing.

Dr. Bödecker:

A mere congestion, an eruption.

Dr. Mitchell

Said that was an illustration of perverted circulation. With regard to the case where there was an accentuation of trouble requiring devitalization of the pulp, that appeared a return to the conditions found to synchronize with those following the application of cocaine by the osmosic action of cocaine on the pulp. There was no question at all but what electrolysis would convey the cocaine through the dental tissues and produce an anesthesia which permitted of wonderful excavation; it was so complete that it became a misleading agent and a great many pulps were sacrificed by the use of cocaine by electrolysis or cataphoresis. Operators were misled and chemical changes were set up and the restoration of the normal capacity of the pulp went so far in the opposite direction as to produce death of the pulp. With regard to Nervocidine being an anesthetic, which would permit amputation of the pulp, that was an operation which he emphatically denounced. The dental pulp was one of the most sensitive tissues of the body and had less recuperative power than any other tissue, especially in malarial districts. The man who could amputate a pulp and save the remains should be provided with a laurel wreath. He was too good for this world.

Dr. N. S. Jenkins

Said the matter was one of great importance. The members were very grateful to Dr. Aguilar for having brought it to their attention. The profession did not need any other material than that which it already possessed for the treatment of exposed and inflamed pulps. By the judicious use of arsenic and trichloracetic acid and cocaine, every pulp could be treated absolutely without pain; but what was needed was a remedy which would reduce the sensitiveness of cavities which had to be prepared for filling. If the new remedy would accomplish that without the destruction of the pulp or injury to any other tissue, it was perhaps the most important discovery for the relief of pain which had ever been brought before the profession.

Dr. C. P. Haselden

Desired to make a suggestion to those experimenting with Nervocidine, namely, that they should seal a small portion of the drug in an extracted tooth and then examine the apices of that tooth some time after in order to see whether the drug had gone through the entire structure of the dentine, as arsenic would do. By that means it would be possible to discover whether there was a lasting effect of the drug after it was removed from the cavity. He had had a case in practice which had extremely annoyed him—a molar to which he had applied arsenic nineteen times since last November, and he could not even now do away with the sensitiveness of that portion of the pulp that was exposed. Every time he removed the cap and took off the arsenic the patient jumped, and he desired some advice as to how that pulp could be destroyed. He did screw up his courage one day and tried to get a little pressure anesthesia, but without result.

The President

Asked Dr. Jenkins what percentage of trichloracetic acid he used.

Dr. N. S. Jenkins

Said he almost invariably used a preliminary application of arsenic, and then, making an opening into the pulp cavity with a very fine broach, with an exceedingly fine wisp of cotton wrapped about it, he applied a 12 per cent solution of trichloracetic acid and a few crystals of cocaine picked up on the point of the instrument, and by gently pumping that into the cavity he obtained better results than by pressure. The advantage was that the acid gently found its way between the pulp and the pulp chamber and so loosened it that its final extirpation was very much facilitated. In the case which had been just referred to of the difficulty of affecting pulp by arsenic, he should certainly throw a stream of chloral and ether upon it. By that means, and with the use of the other remedies, the pulp could be immediately extirpated.

Dr. W. J. Younger

Thought the lesson to be learned was that Nervocidine should not be allowed to remain in long enough to destroy the pulp. It would appear that if it remained in half an hour or an hour it would be sufficient for the anesthesia of the surface and not tend to the destruction of the pulp. He had been lately using adrenalin and cocaine in saturated solution, and it had had a marvelous effect. Dentine, which he could not polish on account of its sensitiveness, had been rendered completely anesthetic with a saturated solution of cocaine and adrenalin.

Dr. G. C. Daboll

Said he had found nothing that had done for his purpose so well as "Vapocaine." In all the anterior teeth he applied "Vapocaine" with a piece of rubber, and it was very rarely he had to occupy more than fifteen or twenty minutes to remove a pulp without pain, and he had never had any trouble with hemorrhage. He could not understand three sittings being required to control any hemorrhage. He always removed the pulp and filled the tooth immediately as soon as the hemorrhage had ceased and at the same sitting. In order to be sure of the pulp cavity being entirely dry, he went on with the filling and had never had any subsequent trouble. It was necessary, however, to be sure that the pulp was absolutely removed.

Dr. W. A. Spring

Did not quite understand whether the fluid was mixed with an artificial dentine before being put in.

Dr. Aguilar

Said it was mixed with the powder, which was covered with Fletcher's to protect it.

Dr. W. Hirschfield

Thought the future of dentistry depended very much upon the possibility of operations being performed without pain. He regretted that Dr. Jenkins did not live in Paris, where the first question the patient asked was whether the work could be done without pain. If a man with the genius of Dr. Jenkins lived in Paris he would devote himself to the question of finding methods of painless operation. It seemed to him that one question toward remedying pain was to apply the known agents in a warm state.

Dr. Aguilar,

In replying to the discussion, thanked the various speakers. He thought Dr. Sachs had not well understood the points put forward in the paper. He should not recommend Nervocidine as an obtudent for sensitive dentine if he had thought there was a possibility of producing devitalization of the pulp. He had tried to make his observations, bearing in mind the fact that the vitality of the pulp had to be observed. If it produced devitalization, there was no advantage in it, because that insensibility could be produced by arsenic. People who were not conscientious had employed the method of putting in arsenic to diminish the sensibility of dentine, but that was bad practice. In over forty recorded cases he had applied Nervocidine for sensitive dentine, always selecting teeth with healthy pulps. If the pulp died afterward it was because the drug had not been given a proper chance; it had been used where it should not have been, and the tooth should have been devitalized in any case. In all the cases in which he had applied it, in a time varying from one to ten months, the teeth answered to all the tests which were known for vitality of the pulp. With regard to the case mentioned, where sensibility had returned with so much pain that the pulp had to be devitalized, he thought the insensibility produced had led the dentist to misjudge the application of his metallic filling. The natural sensibility returning to the tooth produced that state of hyperesthesia which would have been produced in any case. The argument presented by Dr. Mitchell against the amputation of the dental pulp everybody agreed with, but he did not think Dr. Mitchell could truthfully say that he was able to remove the whole of the pulp in every case. He would find lower third molars where the total extirpation of the pulp could not be properly performed, and in cases of that kind there was no objection to perform the operation of amputation recommended by the most able practitioners. The amputation of the coronal part and the application of something that would mummify the remaining filaments which could not be extracted was recommended by Professor Miller. The advantages of Nervocidine over arsenic for the total extirpation of the pulp were nothing more than the rapidity of its action. Nervocidine would allow of the total extirpation in a much shorter period than arsenic. With regard to Dr. Haselden's case, in which Dr. Haselden had spent over three months treating a tooth with arsenic, anesthesia could be obtained with Nervocidine inside of forty-eight hours, and that was the only advantage Nervocidine had in that connection. The great importance he attributed to Nervocidine was its use as an obtudent for sensitive dentine. There was hemorrhage after the performance of the operation, but not more than was usual in other cases.

A communication was sent to be read to the society by Dr. C. M. Wright, of Cincinnati, on "The New Era in Dentistry."

THE PRESIDENT

Thought it was a great compliment to receive a paper from Dr. Wright and to think that he still remembered the old organization of which he was one of the first officers. He had contributed to the society by means of letters and papers practically every year for the last six years, and he was sure the members were very grateful to him for his continued interest. It would give the secretary great pleasure to write to Dr. Wright and thank him for his present communication.

INCIDENTS OF OFFICE PRACTICE.

The meeting then had presented to it various incidents of practice and casual communications, the first being a short communication on

EXTRACTION OF POSTERIOR TEETH..

BY DR. C. J. MONK, WIESBADEN.

As bearing upon the vexed question of the extraction of posterior teeth, I beg to present a somewhat typical case, the models of which I have before me. The first is the case of a married lady of twenty-eight years of age, who consulted me with regard to a disfiguring protrusion of her anterior teeth in the upper jaw. The cause was found to be the flattening of the bite from want of sufficient posterior teeth to take the strain of mastication, which flattening will be seen by the models to be caused by an early extraction of four posterior teeth. The bite was raised by putting gold caps on each of the lower second permanent molars with extensions on to the second bicuspids, as shown in the models, and the upper anterior teeth brought back to place. A movable regulating plate was used for this purpose, as also a movable retaining plate, as the patient objected to a disfiguring apparatus. Although the case has been finished some time and the retaining apparatus discarded, there has been no tendency on the part of the teeth to assume abnormal position again, the pressure of the lips being evidently sufficient to prevent this, now the bite has been raised. The case is illustrative of the evil consequences which may arise from extraction of the posterior teeth.

Another communication by Dr. C. J. Monk was "A Case of Malposed Cuspid."

In this case a malposed right upper cuspid was found to be lying inside the arch, with the apex of its crown against the lateral and the apex of the root approximately against the apex of the second bicuspid. This case is mainly interesting from its showing the value of the X-rays. With this first picture before one it was easy to cut away the superimposed gum and drilling a hole in the imbedded tooth screw in an iridio-platinum hook, extend a rubber band to a hook attached to bands cemented upon the lower teeth, which soon induced the hidden tooth to show itself. These pictures are shown, the first in its condition of original sin, the other two showing its gradual straightening out, and finally it was drawn down until it is now very nearly in line. Incidentally the other teeth were straightened; as it will be seen, the malposed tooth in its efforts to erupt had played havoc with the position of its neighbors.

Dr. McBride,

Remarking upon Dr. Monk's communication, said among the most difficult cases of treatment were such cases as those where the teeth were deeply imbedded in the alveolus, and, as Dr. Monk had pointed out, the X-rays in that connection were exceedingly beneficial. He had had to treat a number of such cases, and his method of producing the normal eruption of such teeth was not unlike that of Dr. Monk's, and he thought Dr. Monk had done exceedingly well.

DR. GEORGE CUNNINGHAM

Gave a short communication on "A Case of Immediate Regulation."

The case which I desire to bring before you is that of a patient who met with a bad accident from a kick of a horse, by which all the teeth were loosened, one being knocked completely out. I put the teeth back and fixed a splint in such a way that it could be removed if the missing tooth was found in time to be replaced. The patient was not sure whether he had swallowed it, and he offered a reward to see if it could be found on the field of battle. The tooth was found and the splint taken off and the tooth placed in position and the splint once more put on. After a time the patient went to the Durbar at Delhi, where the tooth became loose and suppuration went on. When he came back I again treated the case, and in order to keep the tooth I once more fixed the splint at the back. All the teeth have become recuperated, the nerves have grown up, and everything is in a normal condition, with the exception of the central incisor, which had been completely knocked out.

DR. J. G. PATTERSON

Made a short communication on "Restoration of Broken Down Molars."

Sometimes patients present themselves with half of a molar broken down, and I wish to speak of repairing it with porcelain. My method is no more than the ordinary method of using gold. I make the edges perfectly plain and parallel and press No. 40 gold thoroughly down, and if the tooth is a dead one and the root is of a kind that I can employ a pin I do so. Very pretty results can be obtained by the use of Jenkins' body No. 18. It is particularly applicable to cases where the patient objects to the cutting and grinding.

Dr. Patterson illustrated his method.

A short address was made by DR. G. H. WATSON, who said:

I have no special cases or anything of that kind to bring before you, but I should like to bring to your notice a case in which a patient came to me with an abscess of the lateral incisor. I attempted to save the tooth and opened the abscess pretty freely and treated it, as I supposed, very successfully, considering that I had done a very clever thing, as the inflammation was excessive. That was a year or more ago. Just a few days before I came away this gentleman came in and told me he had been to see various people because he had something new in his mouth, and on examination I found there was a hole right through from his mouth into the nose. The various surgeons he had seen had diagnosed the case as arising from various causes, which I knew were erroneous, and I gave him a note to Professor Sonberg, who told him the hole had been caused by the abscess that had been formed at the root of the lateral incisor. The method of treatment adopted was to place a plate in the mouth and cover the hole. I told him I would extract the tooth and make a surgical operation, and it would heal all right, and that is to be done very soon. I only speak of it to show that sometimes the best efforts we make result in failure. It was a mistake to try and save a tooth in that condition.

At the present moment Professor Schrifter, from Yale College, is in Berlin, and the other day he gave a talk before a medical society on the subject of phonetics. In finishing up he described various kinds of machines, and one that struck me very much was a little cylinder. He placed one of these cylinders on each side of a table and between them a roll of paper covered with lampblack. With a little instrument fitted on the tongue a person speaks and the sound is registered on the piece of paper. His idea is that if an author or any one desires to preserve the intonation of his voice it can be done in this way, the resulting marks being very much like a line of music. Every inflection of the tongue is registered on this piece of paper. I spoke to the professor afterward about cleft palate and he said that as far as he knew there had been no effort to make use of the machine for the correction of the speech in cleft palate, but he told me he thought it was possible it could be developed in that direction. A person with a cleft palate, by reading the line and imitating the sound, would so learn to use the tongue and mouth that he could produce the same tones. There is no mechanical aid as far as I know for the teaching of speech in cases of cleft palate, and those instruments might probably serve that purpose.

Dr. Kirk Davenport

Mentioned a case of "Alveolar Abscess":

About three months ago a patient presented himself to me after having suffered from a bad alveolar abscess on the right superior maxilla, apparently coming from the first or second bicuspid. I treated the tooth in the usual way and came to the conclusion that the antrum was involved. As it was discharging freely, I decided that the tooth trouble was eliminated and filled the root. I kept track of the swelling, which varied very much. Finally I told him that it looked as if the necrosis had extended so far that there would be, probably, exfoliation, and I explained to him that it had passed the alveola abscess stage, and probably involved the antrum. and on lancing I discovered that exfoliation had actually taken place, and I removed a piece of bone about the size of a finger nail. The point I want information upon is as to what I am to do with the teeth. In this case I have an opening as large as the end of my little finger, kept open with a gutta percha plug, and in feeling along the floor of the cavity I can distinctly feel the apices of the roots of the first, second and third molars. Since I have removed the exfoliated bone there has been no pain and very little discharge, and the mucous membrane has assumed a normal condition and everything is progressing favorably. As the teeth are firm and all the necrosed parts seem to have exfoliated, is it worth while treating all these molar roots, filling them carefully and attempting to retain them? If that is done, what can I tell the patient as to the probable results?

Dr. Monk

Mentioned a similar case in a dog. The outer plate of the buccal wall of the upper jaw became necrosed and he saw that the exfoliation was complete. He opened the dog's mouth, and with an old pair of pliers pulled a piece away and wiped the wound over with nitrate of silver, and the teeth had not loosened and were all in perfect condition, though the operation had taken place four years ago.

Dr. Davenport

Asked if the nerve connections had been severed.

Dr. Monk

Said he did not think so. The dog seemed to have no further trouble and was exceedingly grateful.

THE PRESIDENT

Thought that Dr. Farmer, who was, unfortunately, unable to be present at the meeting, would be able to afford Dr. Davenport some enlightenment.

On the proposition of the president, seconded by Dr. G. O. Webster, a hearty vote of thanks was unanimously accorded to the readers of papers and those who had taken part in the discussions, and the regular general session of the society closed.

CHICAGO DENTAL SOCIETY.

Regular meeting of the Chicago Dental Society, Tuesday evening, June 7, 1904, the president, Dr. T. L. Gilmer, in the chair.

DR. J. P. BUCKLEY

Read a paper entitled "Whither Are We Drifting in Therapeutics?" which was discussed as follows:

DR. ELGIN MAWHINNEY:

It is a pleasure to have the privilege of opening the discussion on Dr. Buckley's paper. Dr. Buckley always has something interesting to say when he appears before this society, and this time is no exception to the rule. I am very glad that Dr. Buckley has confined his paper around the one central thought, viz., the error of using things the nature of which we do not know. I believe that the dental profession is trying to keep abreast of the times in the matter of therapeutics. The literature of the profession is filled with a great variety of useless conjectures about the action of drugs. Year by year this conjecture is being sifted down, until we now are getting at least to a scientific basis upon which to work. We are at least beginning to understand some of the fundamental principles upon which drugs act, if they act at all. I know very well that in applying drugs in the treatment of disease there always will be a certain amount of speculation, for that science always must be somewhat speculative in its nature; mark, I say somewhat speculative in its nature, although the fundamental principles are being carefully worked out. As Dr. Buckley said, we have now many excellent textbooks that deal almost wholly with the physiological action of drugs, or the action of drugs upon the living organism, either as a whole or upon some particular tissue or organ of the body. I think it is a fact, however, that even though what I have said is true, dental therapeutics is the most backward of all our dental science. It has been necessarily so because of the speculative nature of the science. For many years I have held to the idea that no one should use any drug the nature and action of which he knows nothing. I would a great deal rather trust myself in the hands of a physician who uses, let us say, twenty-five remedies and knows exactly what they will do under given conditions than to trust myself in the hands of a physician who dabbles in 500 and doesn't know anything accurate about any of them. Dr. J. A. Allen, a great many years ago, made the statement that he could practice within 100 miles of a drug store, by which he meant to suggest the idea that a few drugs well understood could be used to combat most of the ills to which flesh is heir. And I think that is true in dental therapeutics. We have had the market flooded with all sorts of remedies, and I am sorry to say that it seems as if, in a great many cases, the principal idea was to get into the popular wave in time to reap a financial benefit rather than to wait until such time as things could be proven with reference to their merit and worth. So that each year we have to throw aside a lot of things that seemed to be very propitious at the outset. I want to encourage the idea of studying the agents that we use. I do not think we know all there is to know about any one of the common things we use. I think it would be better for us, perhaps, if we gave a little more time to acquainting ourselves with the action under various conditions of the common things, the drugs that we have tested and know are valuable under certain conditions. Perhaps under certain other conditions they would be equally valuable if we knew how to use them. That may seem to digress a little from the thought of the paper, and I want to get right back to the thought, if I can, for that is the important thing for us tonight, and that is the idea of using and recommending combinations of drugs of which we know nothing, either as to the component parts of the combination or the action, perhaps, of any one or two of the drugs contained therein, much less the action of the combination. There is one side to this question that I want to bring out. The idea is this: The habit is growing very rapidly in the profession, judging by the financial success of the concerns that are promulgating these agents, to use things that are put into their hands without knowing what is in them, and as a result they say to their patients, "You get so and so and I think it will be a good thing," or "You get a bottle of 'something else' and use it: I think it will help you." It belittles the profession; it is narrowing to the man who practices that way, and it is degrading the standard of the profession in the estimation of the public. You needn't tell me that the patients think I have done as much for them when I say, "Get a bottle of some patent nostrum and use it as directed." you needn't tell me that that patient thinks I have tried to do as much for him as if I sit down and write a prescription, the nature of which I know. Do you pretend to tell me that I can't write a prescription that would be just as palatable as anything in the market, that will do just as much good as anything in the market? Do you mean to tell me that my prescription can not contain all the beneficial drugs that is contained in any of the other so-called patent nostrums? Do you pretend to tell me that the pharmacist does not know how to put that up as well as the man who puts it up in some big factory? Not at all. As Dr. Buckley said, there are certain fundamental laws upon which all these things must be done if proper results obtain. I wish that I could encourage, then, the idea of discouraging the wholesale use of these things that are so readily obtained in the department stores and other places for 38 cents. It cheapens the dental profession; it belittles the dental profession in the estimation of the public every time you do it. Then there is another thing that does. You know when dentists get to recommending these things patients go and buy them without consulting the dentist at all, and they become habitual users of these kinds of nostrums, which may be harmful under certain conditions. I am one of those who believe that it is not necessary or needful at all times for the mouth to be bathed in any kind of nostrum. I believe nature planned this thing pretty well, and unless nature is perverted she will take care of herself. And I want to decry the wholesale use of things without the prescription of the dentist for all of these lesions, such as "sore gums" and pyorrhœa and loose teeth, etc. It is a great mistake. People get in the habit of using them; the normal secretions of the mouth become perverted so as to require the use of these agents; the natural functions are not performed, and wholesale injury is the result. I wish the dental profession would learn to write prescriptions scientifically. I don't mean to infer that they don't know how to do that, but I am afraid the great majority don't. I believe the reason why so many of us say, "Go and get a bottle of listerine," is because we don't know how to write prescriptions. I think the paper is very timely, and I hope that we will remember the thoughts contained in it. It ought to discourage perhaps some of us from trying to get into the market with some patent nostrum, and it ought to encourage the public in consulting their dentist as they do their physician, and that would be a good thing all around.

Dr. W. H. G. Logan:

The paper brought out two points,—the point of using drugs or compounds of which we do not know the component parts, and the point that dentists should give more time to the study of dental medicine. I think it all very well that you should know what is in a drug, but if you are only going to know one thing about that drug, let me know its action and its effect and I can get along without knowing what is in it. I think it is more important to know the pathological lesion that you are going to treat and what you have got to bring back to normal; it is as important to know that as it is to know what you are going to use. You must know the effect of the drug, so that the pathological lesion that you are trying to treat will be correctly treated. I agree with the essayist, however, that a man should not use a compound with which he is not familiar with the action and effect, at least. In reference to advising the use of drugs or compounds for the sake of getting yourself in print, I agree with him that that should never be done. No man who upholds himself as a member of the profession should ever allow his name to be used on a page where there is advertising. But if a man believe that oxpara, or anything else, is a good thing, and is sincere in his belief, I believe it is his duty to give it to the profession in an article and sign his name to it. But he shouldn't allow the man who makes oxpara to copy out a small portion of his article, put his advertisement below it and ship it all over the country, for the simple reason that he lays himself open to the suggestion that there may be something in it for him. In regard to the dental profession not writing so much as it used to upon dental therapeutics, I believe there is a reason for that—not that we are going backward, not that we are not keeping up with the times; but I believe the reason we do not see these articles so often is the same reason that we do not see so many articles on how to insert gold fillings. The principles have been studied out; the methods have been discussed and decided, therefore we do not discuss in lengthy papers any more the insertion of gold fillings. Some years ago such men as Harlan, MaWhinney and a number of other men looked into the question of dental therapeutics with special reference to the treatment of putrescent root-canals. They studied the question out, they solved it to the satisfaction of the profession. We are following it; we don't need to discuss it so much as we used to, because the principles have been laid down and have been found secure. That is the reason we do not find these articles. Now, of course, we do need new drugs, but I believe Dr. MaWhinney said we need more knowledge of the old more than we need new drugs. Dr. Lyman said, "Give me eight drugs and I will treat every disease with which I am acquainted." I wish to agree with Dr. MaWhinney. Let us have more knowledge of the drugs we have, deeper knowledge of the pathological lesions that we are to control, and I think we will get along fairly well.

Dr. George W. Cook:

I think in treating the mouth that we are apt to use most anything that we happen to get our hands on. The sample bottles that come in we give to our patients and send them away. Another very deplorable thing that we frequently see is that many of the remedies are recommended by some of the leading members of the profession. They are permitting all sorts of advertisements to go out with their names attached regarding the properties of certain mouth washes or root-canal dressings, etc., and they don't know what those preparations contain. It seems to me that one of the most important things now for the dental profession to study is the action of drugs, and of course that means upon physiological as well as pathological conditions. It was only a few years ago when there was hurled throughout the country the names of prominent men who had put their names to a remedy that was sold throughout the whole country as a fine remedy in certain conditions, and none of them knew what the remedy contained. Those are the things that make the laity feel that we are not a profession. You go around dental offices and you will find half a dozen of little sample bottles of abscess cures, etc., sitting around. They tell you. "This one is a wonder." You ask them what it contains and they say, "Well, I think it contains so and so; it smells like it." Now, that is about the extent of the knowledge of these medicines. If we are going to practice therapeutics in that way there is no use of studying therapeutics in colleges. I believe this paper is one of importance at this time to call the attention of the profession to the necessity of trying to get on the right track. Dr. MaWhinney was very mild when he said that he believed the majority of the profession could not write prescriptions. I don't think any of them know much about it. I think if you started out to find a man who could write a prescription scientifically for anything, other than probably a little water with something in it, you would have a hard time finding one. That is a very deplorable condition.

DR. J. N. CROUSE:

I am very much disappointed in the essay and the speakers. What do we want in the practice of dentistry, or what does the community need? It is something in the shape of a wash that is antiseptic, that will prevent the teeth from decaying. Why don't these learned gentlemen give us the prescription? I have been trying to get some form of a prescription that I could prescribe to my patients. I don't claim to know enough, and I don't believe they do. Dr. Cook has promised for two years to give me a formula of a good mouth wash, but I haven't received it yet. I was in hopes somebody would give us something of some use. We all agree that it is a practice that ought to be condemned for legitimate practitioners to endorse nostrums they know nothing about. I have been offered a thousand dollars to give a recommendation to a remedy. Now, if there is any place that we must advance it is in therapeutics. Dr. MaWhinney said that if nature wasn't perverted it would take care of itself. The very fact that we have caries going on with the rapidity that we have shows that the secretions are depraved, shows that the human family are needing something. Don't you think that some day we will get some form of antiseptic that will make the destruction of teeth much less rapid? I think that is where we are going to advance more than any other place.

Dr. MaWhinney:

I beg the privilege of just a word. I would like to ask Dr. Crouse how he expects to put into one bottle a remedy which will be suitable in all cases. If you are going to stop decay in any one mouth you have got to find out the condition of the saliva; what are its chemical constituents; is it alkaline or acid? You have got to go at it scientifically.

Dr. Crouse:

In other words, we have got to find out what causes decay first. That we don't seem to know yet. Do we know the cause of dental caries?

Dr. Cook:

Practically so, yes.

Dr. Crouse:

I want you men who have the scientific knowledge to give us this.

Dr. J. G. Reid:

I think that Dr. Logan came pretty near hitting the nail on the head when he said that we don't really in very many instances understand what we are treating. We are not familiar enough with pathology. If we knew more about pathological conditions we would understand better how to treat disease. How many times have you heard people say, "I have used this drug for the treatment of an abscess and it does not cure." Why not? Simply because the man didn't know what the trouble was originally. I believe the secret of therapeutic success is knowing what you are going to treat. I get a statement once in a while to pay a little bill from a dental depot, and the first thing that tumbles out is an ad. of kill-'em-quick or something of that kind, from a dental depot. "We have it for sale." What is it? They don't know what it is. They put it out to you and tell you it is the best thing that was ever made. Now, to me, of all the disgusting things that is one of the worst, to have that sort of thing every time I get a little bill. That sort of thing is flourished in front of you a dozen times a year and you can't help buying it; you get the fever. This paper wasn't long enough to suit me; it didn't go far enough. I am sorry to say that the essayist took the wind out of my sail, because I was getting something of this kind ready to read before long. There are a dozen prescriptions that have been given for just such things as Dr. Crouse has asked for here to-night, in public print, and yet you will send out and buy a bottle filled with a patent nostrum.

Dr. E. J. Perry:

I think that I appreciate this paper, and was very deeply interested in it, but I have the same feeling that Dr. Crouse has in regard to it. After all, I haven't anything that I can take to my office with me tomorrow, except perhaps the feeling that I don't know enough about materia medica. Someone has said that medicine is a shrewd system of guess work. I will modify that and eliminate the shrewd part; it isn't even shrewd. The last thing the essayist said when he sat down was, "Use a very little medicine and a lot of common sense." Dr. J. A. Allen is quoted as saying that he could practice medicine a hundred miles from a drug store, and another gentleman said that he could practice medicine with eight drugs. All of these eminent gentlemen have agreed that the subject is vastly important, and yet they have all with one voice said that you must not use any medicine to speak of. Now, that's a funny thing. I never wrote a prescription for a mouth wash in my life, and I don't believe that any gentleman sitting here can write a better prescription for a mouth wash than borolyptol, listerine or lavoris. I don't believe that there are half a dozen dentists in the city of Chicago who make a business of writing prescriptions for mouth washes. Dr. Cook, how many prescriptions do you write every day?

Dr. Cook:

Sometimes I write only one, because I only have one patient.

Dr. Perry:

You might just as well say that you must understand the component parts of things that you use. I tell you these ordinary druggists can not compound these things as well as these experts in the laboratories. The commercialism of it is sometimes offensive to the highly professional gentleman, but it never hurts me. I like to inject a little real honesty into the subject.

Dr. Buckley (closing discussion):

There is another paper to be presented tonight, and much as I would like to elaborate, I must be brief. Dr. MaWhinney struck a good nail on the head when he said that we ought to write more prescriptions. There is a book that came out on dental medicine recently that contains many good things, but one of the most important chapters is on prescription writing; and one of our dentists here in the city, in reviewing the book, said that while it contained a good chapter on prescription writing it was something that was of little value to us as dentists.

Dr. Logan's remarks were all disconnected. He said one thing and then he turned right around and contradicted himself. How can we know the action of a drug if we do not know the constituents of the preparation? He says you can use oxpara if you get good results, if you know its action. How are you going to know the *action* of the drugs that compose oxpara if you do not know them? I know them, but the originator of the formula didn't tell them to me. Dr. Logan does not appreciate the difference between *action* and *effect* of drugs. He also said that Doctors Harlan and MaWhinney and others established the principles of treating teeth. I wish I knew where they were. I wish I knew the principles that have been established for the treatment of diseased conditions of the mouth. He said we don't need to write articles on therapeutics—the principles are established; and then he said to study the pathology and study the action of the drugs.

Dr. Crouse wants someone to give him a mouth wash. I anticipated the criticism which came from Dr. Crouse and Dr. Perry, and I mentioned, in the closing of my paper, that I might be censured for criticizing the use of these preparations and not offering any substitute method of treatment. I said also that I would be very glad to offer them if I believed that the profession was so lame as to need them. Dr. Crouse and Dr. Perry have admitted that they are lame enough to need them. Gentlemen, I thank you.

A paper was read by Dr. J. H. Prothero, entitled: "Improvements in Professional Means and Methods During the Past Decade."

DISCUSSION.

DR. E. J. PERRY (opening discussion):

There are several points of time in a man's life that impress him most. When he gets married is one; when he graduates and commences practice is another. But there are only a few points of time from which he dates things. There is nothing to begin at ten years ago that will refresh my memory as to the exact status of our profession just a decade ago, excepting the World's Columbian Dental Congress, but that was eleven years ago. If the progress of our profession was to begin in 1871, when I first began to fill teeth, it would be easy for me to recall the exact status of my profession at that time. I didn't know that we had gone forward so rapidly; I didn't know that we had attained so much of incalculable value to the world and ourselves in the past decade, until I reflected upon the condition of our profession as indicated by the World's Columbian Dental Congress, exhibits and papers and clinics held in our city in 1903. If the next decade shall show us as much progress and advancement as the past decade has I don't know just where it will be, but I will prophesy, and I am not much of a prophet, that in the next decade some of the gentlemen who are compounding drugs and experimenting with compounds will be able to give us a compound in the form of a cement that is absolutely insoluble, and the grain of which will be so fine that we can cement an inlay in place and the joint will be out of sight. I am looking for that to come. I look for the porcelain inlay to be the perfect filling in ten years. I look for the indications for the porcelain filling to increase vastly within the next ten years. I tell you, gentlemen, that the ingenuity and the skill, the persistence and the labor that is being devoted to the perfecting of the porcelain inlay is something that is a tremendous power. I do not think it is any too much to expect that our profession will grow as much in the next decade as it has in the past. When I graduated in 1871 I went west of Chicago, and I think—I might be mistaken, but I think I was the only graduate in western Illinois. I want to say this, that one of the most noticeable things to me is the growth since then, and more noticeable in the last decade, the growth of fraternal feeling in the dental profession. With the growth of manual dexterity and all that goes to make up the practical dentist, has grown the dentist's heart toward the other dentist. There is a warmer feeling among dentists today as a class than there ever was before. I know what these jealous feelings were thirty years ago. Now, I would give more for a man's heart than I would for his head. I say to you, my friends, that this is a sign of progress. There is not a man who belongs to this society, or any other dental society, who has anything he won't give to his profession, and they are always glad to do it. Go into any dental society, the greatest post-graduate schools we have, and you will get the glad hand if you have a glad hand to give; and if you don't get the glad hand you haven't one to give, and that is the reason you don't always get it. I say, along with the mechanical progress and the other material progresses, that the progress that has been made in fraternalism is the most significant, and I will say the most important.

Dr. D. M. Cattell:

This is a subject that I know very little about, but I was interested in it on account of its historical notes, which recalled my mind back to ten years ago, when a few things were introduced in that Congress that some of us had heard very little about, which today are very common among us.

Dr. J. N. Crouse:

When I picked up the program of our State Society and saw that it was the fortieth anniversary, and that I was in Chicago and helped organize it, I realized that I had been practicing dentistry forty years. Great progress has been made in the dental schools. When I went to college there was one demonstrator to a class of eighty-six. We taught each other. It would hardly come under the head of teaching, except that we learned from one another. Think of one demonstrator for a class of eighty-six. We had a chair every other day. The progress in the dental schools and their methods of teaching has been the greatest advance of any, I think. Now they are equipped to teach; all they need now is the material; they are not getting the right kind of material. That is where the next advance wants to come. Then the advance in practice. The great majority of prothestic dentistry was vulcanite plates up to the time that bridge work came into use, and that line of improvement coming along with the necessity of being able to do this fine work made the great progress in the line of practice. In operative dentistry the porcelain inlay is one great advance, but there are many others. The methods of operating have improved by experience and knowledge. I don't think much of world's fairs, however. I never would have one if I could prevent it. World's fairs are a great disturbance, i. e., they do a great amount of work for four or five days and then the whole thing goes to pieces. I don't think the World's Columbian Dental Congress here was what it ought to be.

Dr. W. T. Reeves:

The paper treated of the subject of the advancement in the last decade. That comes very nearly covering the full period of my practice in dentistry. I graduated in the class of 1891. In my time, of course, I can see a great advance along in the operative and in connection with materia medica, and in every field of dentistry, and I think that the advancement in the future is going to be along in the line of the use of porcelain, and in materia medica in the direction of preventive dentistry. I wish that the paper had treated a little on that subject. Dr. Perry has already very emphatically stated what he thinks is coming in the line of the use of porcelain.

Dr. Stephan:

I have been acquainted with dentistry quite a long time, although I graduated in 1896. I have said to several young men who have been in my office lately that when I look at my book of gold foil and my roll of rubber dam and see how long I have had them. it scares me. I do so much work by the use of cotton rolls, rubber dam clamps, and the use of inlays in particular, that it is unnecessary for me to use much rubber dam and foil. and I feel that there has been quite an evolution in dentistry within the last few years. There is one thing that I think has been of great value that has been introduced lately, and that is the spiral broach in the treatment of root-canals. I seldom pass a root-canal by now without getting to the end of it by means of the spiral broach. I consider that a very great advance. I really believe that the greatest advance in operative dentistry has been the inlay. The porcelain inlay has brought out the gold inlay. What its possibilities in the future will be I can not tell, but I believe that it will practically supplant the old method of putting in foil fillings.

Dr. C. N. Johnson:

The thing that impressed me most in that paper was this: Some years ago, before the Columbian Congress was held, an eminent gentleman in the profession made the statement in public that there was nothing in the way of advancement in dentistry that we could look forward to with any degree of hope; in other words, that the profession was practically written up. That was by the editor of a dental journal. Since that statement was made every one of these advances that have been referred to tonight have been introduced. There has been greater advance along the development of the better aspects of practice since that remark was made than had been made before in fifty years.

Now, Mr. President, Dr. Crouse made a remark that pleased me immensely, and I can't forego referring to it. I really believe that that is the first compliment that dental education has received by a man outside of college work almost in my experience. When Dr. Crouse, who has watched the progress and development of the profession, said here tonight that the greatest advance had been made in the line of dental education, that paid me for all the energy that I have exerted in that work, because I believe that that remark is true. I don't want to enter into any prophesy of the future, but if I did I should say that it would be more along the line of two things, and those two things really mean one thing, and that is this,—that the profession must in the future pay more attention to the study of conditions in the mouth; and if we study conditions in the mouth we will then be practicing, sooner or later, preventive dentistry to a greater extent than today. The trouble with the profession is that they get into a rut; they think simply of mechanical operations; they do not study sufficiently the conditions that surround the operation, and they are not always able to do the right thing at the right time. I do not believe, until we know conditions better than we do today, that any one preparation will do for the people as a mouth wash, as an abscess cure or as anything else. We must take each individual case and study the conditions that are present, and I do not believe the time will ever come when we shall have a mouth wash that will meet every case. We must base our practice on the conclusions from the study of each particular case, and I think when we get broad minded enough to do that we will advance very much more rapidly than we have in the past.

Dr. J. G. Reid:

There is one thing that hasn't been mentioned that comes within the history of my own life. I remember distinctly, when I first began the practice of dentistry as a young man in Chicago, that there was a great desire, if I may so state, to know how to save teeth, how to treat teeth, how to save the natural organs, and I remember that those were very stubborn things for the dental profession at that time. Now, I would like to know if there is any one department in the practice of dentistry covering two decades and a half that has been more marked than for our knowledge of pathology and how to save the natural teeth and make them useful. I think previous to that time it was a very common and a very frequent occurrence for the application of the forceps where thousands and thousands of teeth are saved and made useful now.

DR. GEORGE W. COOK:

I just entered the profession at the time of the Congress, and, of course, that gathering impressed me very much, and I have recently been comparing the literature of writers at that time, and when we say that the gathering of a large body is not as beneficial as a small one, that is, we do not make the progress, I think we are somewhat mistaken. If we go back and look over the transactions of the Columbian Dental Congress I think we will find there some of the brightest pieces of literature that the profession has ever seen. The work of porcelain art. I recall to mind the clinic of Dr. Taggart that to me was a revelation, and I think that the dentists of Chicago ought to be proud of the work of Dr. Taggart in this line. At that time he was producing beautiful pieces of art in the way of crowns and bridges. The reading of papers before the smaller societies is of importance, and to the individual dentist I think is more important than perhaps these larger congresses, but I believe these congresses bring out certain phases of the application of knowledge that will not be brought out in smaller gatherings. Men who are selected as essayists and clinicians at these congresses, while they are not always selected purposely for their ability, many of them exert a great deal of effort in order to bring out some of the best things in the line at which they are working. I believe that the two last congresses have done a great deal for dentistry in bringing together the literature of the various countries.

DR. C. M. BALDWIN:

Better dental service can be rendered today, with less strain upon patient and operator, than at any previous time. Whenever we can make our work easier for the patient, and not lower its standard by the methods used, much has been gained, for the service that we can perform will be the result of our skill combined with the patient's capacity and willingness to receive it.

Many times it is possible to do gold and porcelain inlay work for patients who are unable or unwilling to endure the long, tiresome operations necessary to complete the large compound gold fillings.

Most patients are pleased to escape the rubber dam as much as possible. and for many short operations it may be replaced by the Ware mouth props and cotton rolls, as this affords space, dryness and the free use of both hands.

Dr. Crouse:

I want to enter a protest. In any line in dentistry whenever you hunt an easy place it usually leads to a letting down. I don't believe it is possible to prepare cavities as well without the rubber dam as with it. It will lead to not preparing the cavities as well. It is is on the wrong line when you get to hunting easy work in dentistry.

Dr. Perry:

You don't want to put the rubber dam on to prepare cavities. Whenever you have a large cavity to prepare, or a medium size cavity, if you will prepare it with little stones run in water at a high rate of speed you will be surprised how nearly painless that operation will be.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held February 9, 1904, with the President, Dr. Elliott R. Carpenter, in the chair.

Dr. Truman W. Brophy

Read a paper entitled, "Injudicious Medication."

DISCUSSION.

Dr. J. H. Woolley:

We have to thank the essayist for some valuable suggestions. I was very much interested in his paper, because it has followed some lines of thought similar to my own. I think the remedies to which he has referred are many times injudiciously used, and in their too frequent application often retard healthy functional activity.

I believe that in many cases diseased teeth can be restored to a healthy condition by lessening medical treatment and destroying quickly the cause of the disease (pathogenic germs) through the aid of the heated broach, thus lessening the need of medication. Well-known experiments have proved that the smallest amount of disorganized pulp left in the canal can cause diseased conditions of a very serious nature. Through the aid of heat the remnants of pulp can be carbonized, and also the nerve filaments along the canal, thus leaving the canal thoroughly aseptic. Even though the root be sore, as it is in some cases, it can be safely filled immediately after this mode of procedure.

Dr. C. N. Johnson:

I am very glad indeed that Dr. Brophy has brought this subject before the Society, because it is one that will require a good deal of agitation at different times. With us in dentistry, as with medical practitioners, the tendency is to over-medicate. In the more modern thought regarding the treatment of disease I believe there is a tendency to medicate less and less, and that the chief thing in the management of any disease is to remove the cause. As Dr. Brophy said in his paper, we should do everything we possibly can to assist nature, because it is nature that effects a cure in every instance. I think that is one of the best points he brought out.

I want to ask him one question. He mentioned the use of a saturated solution of menthol. I would like to ask him how he makes that solution.

Dr. Brophy:

A saturated solution in water.

Dr. Johnson:

I have used menthol with satisfaction in my practice.

This old question of the injudicious application of drugs should be agitated, because the younger men in the profession particularly get an idea that when a part is diseased all they have to do is to medicate it, and the tendency is to apply drugs to the part too frequently. The chief thing should be to remove the cause, whether it to be micro-organisms, mechanical irritation or other agencies, and nature will step in and help out. We may have to stimulate the parts to some extent, and this can be done by the judicious use of drugs. With many of the diseases of the gums and of the peridental membrane, it is a matter of bringing the parts under the full functional activity of mastication. When mastication is not as thorough as it should be, stimulation may be had by massage of the gums. It seems to me the bringing about of the full functional use of these parts will do more toward eradicating those diseases of the gums and peridental membrane than the application of drugs.

DR. J. G. REID:

I am sorry that Dr. Brophy went over this subject so lightly as he did. I feel inclined somewhat to disagree with some of the things brought out in the paper. I do this from my own clinical experience.

I can not condemn an agent that to me has been one of the most valuable adjuncts in dental practice, and that is peroxide of hydrogen. I can see where it may be used injudiciously, and we can not do anything more than to call attention to its injudicious use, but it must not be condemned because it may have been injudiciously used by persons who are not familiar with it, and who are using it in conditions they may not be familiar with. It is timely to offer a suggestion of that nature, but when read in cold print and emanating from a man who has had such a renowned and extensive experience in surgery as Dr. Brophy has had, the impression may be gained that the agent can not be used and must not be use at all. I can not discard an agent that to my mind is one of the most valuable I have in my case. I have used peroxide of hydrogen in my practice ever since it became known as a remedial agent. It is a little more than twenty years since I published my first paper on the use of peroxide of hydrogen, and I have used it in my practice from that time to the present. If the agent is used empirically by some practitioners, it should not be condemned on that account. The mere fact that Dr. Brophy has presented us with some disastrous results following the use of peroxide of hydrogen indiscriminately is no reason why the agent should not have been used judiciously and good results obtained from its use. People die from the use of chloroform, but why should we discard an agent so useful as chloroform simply because it may have caused death? I can not get away from the use of peroxide of hydrogen in the practice of dentistry.

Dr. Brophy has referred to the employment of iodine. That agent, when used improperly, is harmful. But we must bear in mind that we should be familiar with all of these agents, and know how to use them. We should use them with care. We should be familiar enough with the conditions under which we are applying them to know how to use them intelligently. I have seen peroxide of hydrogen used injudiciously, and it is possible that I may have used it at times myself unwisely, but I have never seen the evil results accrue that have been depicted by Dr. Brophy. I have never seen cases of phosphorus necrosis of the extent he has presented to us. We know what phosphorus necrosis is, and what a destructive agent it is. But in the continuance of necrosis by the employment of peroxide of hydrogen it does not seem to me that it could be carried to the extent which has been presented to you. The necrosis was already there, before the destructive phosphorus had done its work.

With reference to the use of cocaine, I have seen it applied as a local anæsthetic to the pulp, and I have seen infection result, and abscess occur, from the injudicious use of trying to alleviate a partially devitalized pulp by the application of cocaine for its local anesthetic effects. Why? Because the pulp was affected already; the cocaine had been introduced into it under pressure for the alleviation of a partially devitalized pulp. What was the result? Infection by pressure anæsthesia, the infection having been carried into the tissues beyond, and resulting in the formation of an abscess. I have seen this in three or four cases. Thank God, these cases did not occur in my own practice. Why should I use an agent of that kind in a partially devitalized pulp that is infected and try to relieve the condition by pressure anæsthesia when it would make it worse instead of relieving it? My friend, Dr. Brophy, would say that is just the reason why peroxide of hydrogen carries infection by pressure beyond the point for which it is intended. I have heard him make such a remark before, and I presage his remarks in this matter. If any of these agents are used injudiciously, then harm will come sooner or later, but I do not think such a useful agent as peroxide of hydrogen should be condemned.

Dr. J. E. Hinkins:

I am very grateful to the essayist for this paper, and I feel that I ought to be congratulated on having induced him to present a paper on such a short notice.

Dr. Brophy called my attention a couple of years ago to the injudicious use of peroxide of hydrogen. Like Dr. Reid, I have used it ever since I have been in practice, with varying, but successful, results. But up to the time that Dr. Brophy called my attention to it I was using too much force in applying it. I used it in my cases with a syringe with a good deal of force, and I am satisfied I used it injudiciously. Since that time I have not used it with so much force, although I have not by any means discarded it from my medicine case, because I believe in many cases it is necessary. But in devitalized pulps, where before I always used peroxide of hydrogen, I now use boracic acid in warm water, and I believe I get better results. I do not have periosteal inflammation or soreness around teeth that I used to have following the use of peroxide of hydrogen. I have never used it very much in the treatment of abscesses and things of that kind, because I have employed other agents which I though were better.

Dr. C. S. Case:

Too much can not be said in regard to the injudicious use of peroxide of hydrogen. While Dr. Brophy was reading his paper, I felt as if each one of us ought to go around among dentists and explain the danger of using this agent in an injudicious way. I think its injurious effect comes more from its mechanical than chemical action. It is often used in abscesses in which there is no fistulous opening. It is injected with the syringe in such a manner that the syringe corks up, so to speak, the exit in the point where it entered the abscess, so that the gas which immediately arises from that act has an intense mechanical force in spreading the sphere of the disease into the healthy tissues. I think in those cases especially it should be discarded. Dentists who are using it indiscriminately and injudiciously should be informed in regard to the injury they are liable to produce by increasing the sphere of the disease rather than diminishing it.

Dr. W. V.-B. Ames:

I think we are under obligations to Dr. Brophy for calling our attention to the dangers of the injudicious use of peroxide of hydrogen, because I think it can not be but beneficial to us to be warned and cautioned as to what might happen when this agent is used under certain conditions. We need a warning, no doubt, against what Dr. Case has just mentioned, namely, the possibility of injecting it when we have literally plugged up the exit to the cavity or blind abscess with the syringe with which we are injecting it.

Only this afternoon I had occasion to go into a bad abscess cavity. Practically, it was a blind abscess. There was a deep pocket between the alveolus and the root of the tooth, and having a very small syringe point with which I wished to inject this agent, I took particular pains to pass a bur very much larger than my syringe point well down to the seat of the disease, so that I would not run the risk of carrying infection beyond the diseased point.

I was glad to hear Dr. Brophy mention the efficacy of a strong solution of menthol, and I want to ask him to give us in his closing remarks his idea of the efficacy of a solution which I have used with considerable satisfaction, namely, a saturated solution of menthol in campho-phenique, which will take up an astonishing amount of menthol crystals in solution, which has a very nice effect on mucous membrane, particularly the mucous membrane of the throat, as well as upon mucous membranes in general. I always have it at hand, and if a patient comes in with an annoying cough which not only disturbs him but myself, I paint a little of this solution over the posterior part of the palate and around the tonsils, so that it will be diffused into the throat, and the patient will be free of the tendency to cough during the sitting. Campho-phenique not being miscible in water, might be thought not to be an efficacious solvent for menthol, yet I have found this solution a very satisfactory remedy.

Dr. Elliott R. Carpenter:

I am very glad that Dr. Brophy has sounded a keynote of warning, not only in regard to the injudicious use of peroxide of hydrogen and its different solutions, but also with reference to the indiscriminate use of tincture of iodine, especially in the presence of pus. Personally, I was fortunate enough to receive my first warning as to the power of peroxide of hydrogen when attending college, so that I have been very careful in its use since, and, with the exception of one case, I have always avoided trouble.

There is one point in the paper concerning which I differ with the essayist, and I am very glad I do, because it will bring out a response from him, and it is this: He considered a moderate solution of cocaine and adrenalin chloride as most efficacious and less liable to produce after-inflammation, especially in the apical region. I take decided issue with him on that point, and in doing so my experience is based on experiments in the use of these drugs. I believe I was the first to call the attention of the profession to a combination of the two drugs for that specific purpose—anæsthesia of the dental pulp. I based my first theory of the combination of the drugs (as I used them in a saturated solution of cocaine) upon the fact that the most celebrated surgeons we have today in Germany claim that the stronger the solution of cocaine in any of its forms, the more restricted is the area of its diffusion. Taking adrenalin chloride alone and its physiological action upon the tissue is enough to demonstrate to us that if we make any kind of solution of cocaine with adrenalin chloride, whether saturated or otherwise, it is restricted by virtue of the action of the adrenalin chloride on the capillary vessels. I have been using constantly in my practice a saturated solution of cocaine in adrenalin chloride for nearly three years, and I have never had any deleterious effects from it as yet. Under no circumstances would I use it in a case of suppurative pulpitis. I would first try to remove the suppuration, and after that was accomplished, if there was still vitality in the pulp, it is most likely I would use a 95 per cent solution of carbolic acid to overcome that. The fact that adrenalin chloride absolutely, positively and irretrievably contracts the capillary vessels in any part of the body is enough to show that cocaine will not be forced down through and out the apical foramen, and that is the one reason why I have used that in preference to any solution that can be made. In using cocaine in a saturated solution there is hemorrhage, the minute you remove the pulp, at the apical foramen. Put the pulp you have removed under a heavy glass and you will find that there is no blood in it for the last quarter of its length.

I have yet failed to have a case where upon the removal of the pulp hemorrhage has not washed all traces of cocaine from the apical foramen, and I base this assertion upon the fact that in three years I have not had a case of apical inflammation.

Dr. Brophy (closing the discussion):

I will take up the points brought out in the discussion in the order in which they occurred to me.

Dr. Johnson spoke of menthol and asked how I would make a solution. All of you doubtless remember when menthol pencils were first prepared and put on sale in the drug stores for the purpose of painting the brow in case of frontal nerve irritation or headache. and we all know that these menthol pencils produced an effect which was very grateful to the patient in many cases of peripheral pain. This solution of menthol was first called to my attention by Dr. Harlan. who. as you know. is all the time delving in materia medica and therapeutics. and when he made the statement one night that menthol would sometimes relieve the pain permanently in a case of acute pericementitis. it seemed a rather broad statement. because we might have there still the conditions which brought on the disturbance, the factors instrumental in setting up irritation and pain. which the menthol itself would not remove. But it is absolutely true in very many of these cases. even with infection at the apex of the root, that menthol will relieve the pain.

If time permitted. I would speak at considerable length on the value of hot water and hot applications. and in this connection I want to say that which I have never said before—the instrument devised by Dr. Woolley for the purpose of drying out root-canals has a therapeutical action far beyond that which he ever conceived of when he devised it. and whether he recognizes the full value of that instrument today or not. for the relief of pain. I do not know. But that instrument of his. when passed into the root of a tooth about which there is a congested membrane. will have a very salutary effect. because it assists in distributing the excess of blood. Heat. I might say in passing. does not act so much upon a part in a state of inflammation or congestion. or the parts surrounding it: but the object of heat is to invite the congested part away. so that it will not any longer make pressure on the nerve filaments where the disturbance is, and thus prolong the pain.

Dr. Reid spoke of peroxide of hydrogen and of its value as a therapeutic agent. In my remarks I did not decry the use of peroxide of hydrogen except when injudiciously employed. I use peroxide of hydrogen for certain purposes. and probably I always will, unless some other agent comes along that is better. It is unquestionably a good agent on free surfaces in certain conditions. A young practitioner in treating an ulcerated surface somehow got the idea that the thing to do was to keep pouring peroxide of hydrogen on it from time to time. He kept on doing this before I came in contact with him again. The ulcer in the mouth was about the size of a 25-cent piece. I said to him, "How is the patient doing?" "Well," he replied, "we don't have any more pus, but the thing doesn't heal." I said to him, "What are you doing for it?" He replied, "I am washing it out with peroxide of hydrogen." I said to him, "What do you want to accomplish?" He replied, "I want to make the parts aseptic, so that they will heal up." I reminded him that when peroxide of hydrogen was used in this manner it destroyed the very cells that nature was throwing out for the purpose of bringing about healing of the part.

In another instance, a number of years ago, one of my assistants was permitted to see a patient in my absence who had been operated upon for cleft palate. He went to one of the other assistants and said that Dr. Brophy had instructed him to irrigate the parts, but did not tell him what to use. He used a little peroxide of hydrogen, and the tissues were separated just as beautifully as if they had been cut with a knife. The newly forming granulations and cells uniting the two sides were cut out and the parts left open. That is an illustration of what the injudicious use of peroxide of hydrogen does.

A practitioner came to me a few days ago who had a patient suffering from empyema of the antrum. I asked him what he had been doing for the patient, and he replied, "I have been cleaning it out with peroxide of hydrogen." When he told me this I felt cold chills running down my spine. I asked him what was the effect of the use of peroxide of hydrogen, and he said, "The patient suffers a great deal, but it cleans out the cavity beautifully." I cautioned him not to use it any more in such a case. He asked why. I replied, "Because you are carrying infection into the tissues far beyond the seat of the disease, and you may by using this agent involve the ethmoid cells and even the frontal sinus with the infundibulum, as well as the surrounding tissues, causing infection and destruction of the tissues."

I did not say that peroxide of hydrogen should be discarded. Dr. Reid got a wrong impression if he thought I said that, but it should not be used injudiciously. I doubt the propriety of putting peroxide of hydrogen into a tooth pulp canal. In the first place, if there is a mass of disintegrated pulp tissue there, it may be washed out by the use of warm sterile water, boracic acid, or some other agent that will not produce any irritation. and if there is any point at the end of the canal near the apex that is in a semi-vital condition. I do not think it is good practice to put peroxide of hydrogen in these, because it may carry infection through the end of the root, where we do not want it. One might use a little cocaine for this purpose, but generally you can put in a little carbolic acid, which will not do any harm, and it will sufficiently anæsthetize the remnants of the pulp so that you can take it out with a probe. One of the qualities of carbolic acid is anæsthetic. Surgeons in the early days made use of it for anæsthetizing fingers before amputation, and they were very successful in using it in that way.

Dr. Carpenter:

In what way did they use it?

Dr. Brophy:

They used 95 per cent solution on the finger, and then amputated it a little later.

Phosphorus necrosis was alluded to by Dr. Reid. In his opinion it would be difficult for peroxide of hydrogen to produce this condition. It is true, that phosphorus produces disease. Phosphorus is a dangerous agent, and I may say in passing that in all of the match factories in the country, with few exceptions, the employes are forced to bring a certificate from a qualified dentist to show that their teeth are in good condition, otherwise they are unable to get employment. Furthermore, they are using at the present time in these factories the precaution of having a fan or fans so arranged as to blow the phosphorus fumes away from the men who are working. In an exhaustive article on the subject of phorphorus necrosis which involves the lower jaw chiefly, by Dr. Arthur Dean Bevan, of this city, he gives a complete exposition of the modern methods of making matches and the precautions that are employed by the owners of match factories to prevent employes from being affected by phorphorus. Dr. Bevan has reprints of that article, so that any of you may procure one by writing to him. In England it is absolutely essential for employes seeking work in match factories to bring a certificate with them to the effect that their teeth are in good condition. I spent half a day in London not long ago in trying to get a work on phosphorus poisoning, which was in part written by Dr. George Cunningham. It was a paper-covered book. I sent it home by mail, and in the Spring when they were cleaning my office it was thrown away.

Peroxide of hydrogen, when brought in contact with phosphorus necrotic bone, does not have any effect on the bone that is dead, but it will carry infection from the dead bone under the periosteum, where it never would have gone had it not been for the force exerted by the expansion of the paroxide of hydrogen as it came in contact with the pus. Peroxide of hydrogen is like gunpowder, in a way. When you ignite gunpowder in a gun it is going to come out in some way, if it has to come out of the breech. Just so with peroxide of hydrogen, or any other agent under that head, when brought in contact with blood or pus, rapidly expands, and it will come out. Even if you were to plug up the place where you introduced it, it would find its way through the tissues and carry infection ahead of it. I would not discard the use of it on a free surface, as on an ulcer that has been washed free of all the secretions that it is possible to. Even in the antrum, after opening it, and thoroughly cleansing it, curetting away polypi or necrotic bone, or what-not, I not infrequently wash it thoroughly with warm boracic acid solution, and dry it out with pellets of cotton, and with a little peroxide of hydrogen on a pellet of cotton, carry it over the surface of the cavity, so as to cleanse it out well. But I do not do this as frequently as I used to; instead, I make use of an agent which I consider far better for this purpose—argyrol.

In regard to the use of adrenalin choride, if I perform an operation which involves the excision of considerable tissue, I may use this agent with very little loss of blood, but it is the secondary hemorrhage I fear. After the effects of the adrenalin choride have passed away, we have a rush of blood to the parts, and we have as much or more hemorrhage than if it had not been used, consequently many surgeons use it cautiously for the reason I have named. As to the value of it with cocaine, as mentioned by Dr. Carpenter, it is now claiming the attention of the French, particularly our American brethern over there, and those of you who have not read the discussions on the subject by the American Dental Club of Paris

I would advise you to get the January *Cosmos* and read it, because it is interesting.

In the management of cases of pulpitis, pericementitis, and other inflammatory conditions about teeth, it is an agent which is most valuable. When I was a student I was told never to put arsenic in contact with a congested pulp, because the pain would be increased; the arsenic would act as an irritant and increase the congestion; it would not be absorbed; it would not devitalize the pulp. With the application of adrenalin chloride this condition can be relieved, and if you want to apply arsenic you can do it with a reasonable expectation of getting a pulp devitalized.

As to the efficacy of campho-phenique, I have used campho-phenique and menthol, but I do not know that I have used them in the manner Dr. Ames has described, but it appears to me to be a most excellent combination, and I shall make use of it.

THE PRESIDENT:

Do you think there is any liability of menthol in solution having an escharotic effect?

DR. BROPHY:

It can never do any harm. As to the application of adrenalin chloride and cocaine, I believe Dr. Carpenter stated that we can not make a saturated solution of cocaine crystals in adrenalin chloride. I would like to ask him what per cent he uses?

DR. CARPENTER:

One to one thousand, as it comes from Parke-Davis laboratory.

DR. BROPHY:

Have experiments been conducted a sufficient number of times to show that a saturated solution of cocaine in adrenalin chloride can be injected safely hypodermically?

DR. CARPENTER:

That is an important question. I am utterly opposed to its injection hypodermically.

DR. BROPHY:

It is well that you have made that statement, because what we are saying here will appear in print, and it should be distinctly stated that the injection of 1-1,000 cocaine and adrenalin chloride is not free from danger, and that it must be applied locally without being injected beneath the skin.

Dr. Elliott R. Carpenter:

As I have previously remarked, I am opposed to the injection of cocaine and adrenalin chloride hypodermically. I had some six years' experience with the use of cocaine before I wrote on it. Since I began to use a 1-1,000 solution of adrenalin chloride, and making with it a saturated solution of cocaine, up to the 10th of last May, I had 125 cases on record, and of that number complete anesthesia of the dental pulp was accomplished in from thirty to ninety seconds; the average was something under a minute by the watch.

THE FOURTH INTERNATIONAL DENTAL CONGRESS AND THE INTERNATIONAL DENTAL FEDERATION.

REPORTED BY R. C. BROPHY, M. D., D. D. S., CHICAGO, ILL.

(Continued from page 1019 October number.)

On Tuesday, August 30th, in Section I, Department A, Dr. A. H. Thompson, of Topeka, Kan., read a paper entitled "Ethnographic Odontography; The Mound-Builders and the Pre-Indian Peoples of the Mississippi Valley."

This essay was of scientific value in contrasting dental conditions existent with the Mound-Builders and those now existing. The subject had been given much research and study and was presented in a most interesting way through the aid of the lantern.

In Section II of the same department Dr. George W. Cook, of Chicago, read a paper entitled "The Effects of Chemical Agents on Bacteria with Relation to the Saliva." The points of greatest interest dwelt upon in the paper were, first, the showing of how the variations of the normal substances which enter into the live process of bacteria would act upon certain forms of micro-organisms when the quantity and quality of these agents were changed in the culture media, or in substances containing bacteria. Second, the morphological and pathologenic changes taking place in bacteria when their environments were changed. Third, the experiments pertaining to the action of oxygen pressure on bacteria, as well as hydrogen and other physiological elements of living protoplasma, and after these bacteria had lived in such substances, how they were acted upon by the saliva.

It was also shown in this paper that the variation of the osmotic pressure of saliva had an influence on bacteria in their morphological as well as their physiological function. Also, that saliva obtained from different individuals in many instances had an influence on certain bacteria, either by increasing their motility or diminishing it, or changing the form of the bacterium or changing its power to produce certain coloring matter that is formed by bacteria.

Dr. Cook's paper was of decided interest and scientific value, disclosing, as was conceded by Dr. Miller and others, thought which is original and advanced and which is likely to prove substantially correct and of great importance in the prosecution of study of this intricate and mysterious subject.

An address which commanded marked attention was that of Dr. Truman W. Brophy, as chairman of Section IX, devoted to education.

The address was devoted to discussion of the problem at the present time foremost in engrossing professional thought in the United States—that of elevation of the standard of efficiency of the college graduate, and including the standard of education preliminary to entering the college.

The subject was treated under three heads: First—The prerequisites of the student's education. Second—The time element in his professional student work. Third—How to assist the student to accomplish his aims.

Discussion of the matter of requirements of education preliminary to admission to the dental college by Chairman Brophy was broad. Maintenance of certain standards on a basis of high school and college work was criticised as insufficient in itself, the stand being taken that no purely literary or classical school, college or university can effect preparation, in the highest degrees, for entrance upon the study of dentistry or for entrance upon the study or practice of surgery in any of its branches.

A thorough classical education, it was argued, should be demanded as a prerequisite for admission to any professional school, but as a preliminary to the study of dentistry it is equally, if not even more, essential that a thorough course in manual training be taken.

That a knowledge of technology and acquirement of skill in digital manipulation were of the utmost necessity to proficiency as a dentist, and that training in this should be demanded as a preliminary to admission into the dental colleges, was strongly maintained by the speaker.

The suggestion was made by Dr. Brophy that if the dental colleges would unite in demanding. through their catalogues, that forty-eight counts of the prescribed high school course should apply to a technical course and a manual training course, that it would result in due course of time in matriculants presenting themselves qualified in this particular.

Much stress was laid by the speaker upon what he deems the injustice of refusing to grant to students advanced standing, and it was strongly urged that each nation see that a national board be constituted whose duty it would be to examine applicants for advanced standing and grade them for admission to the college in accordance with their merits.

Some time was devoted by Chairman Brophy to criticising statements which have emanated from writers upon dental education regarding American institutions of dental learning, and in which aspersions were cast against certain of these schools which are unjust and misleading.

First, attention was called to statements frequently made at home and abroad to the effect that university schools are on a higher plane and are entitled to greater consideration and confidence, because—as these writers claim—these schools are endowed institutions, and consequently are not dependent upon the students' fees for defraying expenses.

The statement was made by Dr. Brophy that there is not a dental college in the United States which has an endowment of a single dollar, and that in all cases where appropriations are made to any of them, as is the case with some of the dental departments of State universities, in no instances do these appropriations exceed the income of the college from students' fees.

The assumption by men who have written upon this subject, that commercialism dominated the management of dental colleges not affiliated with universities, was characterized by the speaker as incorrect, unjust and misleading, and it was strongly maintained by him that just as faithful, honest and meritorious work was being done by the independent schools as by the affiliated schools, and in some cases, where State authority directly applies to the management of the latter, better work, because of political interference to which the management of the State institution is subjected.

The evolution of time requirements of the National Faculties Association, since its organization in 1884, was described, and the history of the recent contention growing out of the act at its Milwaukee meeting in 1901, declaring for a four-year course of seven months—subsequently reduced to four years of six months—was given.

A personal preference was disclosed by Dr. Brophy for the standard as ruled by the special meeting, held the present year at St. Louis, namely, thirty weeks of six days each, in each of three separate academic years, exclusive of holidays.

The reason for this preference was stated as being that the interests of the student are subserved by saving him a year's time, and that, at the same time, the actual number of days of attendance is greater in the latter course than in the former, as shown by the following tables:

Days in thirty teaching weeks, exclusive of holidays	180
Course of three years	3
Total teaching days in three-year course	540
Days in six months each year	181
Holidays and Sundays	59
Total teaching days each year	122
Four-year course	4
Total teaching days in four-year course	488

Dr. J. S. Hodgen, of San Francisco, chairman of Section III, devoted to chemistry, in his opening address argued that chemistry should not be taught in the dental college by a pharmacist or by a physician, nor even by a pure chemistry scientist, but that the science should be taught the dental student with special reference to dental application. Chemistry with the pharamcist, he said, was studied and applied to developing remedial agents by building up new and imitating natural products, while the science with the physician was applied to a particular line of work in diagnosis, while the demands from a dental standpoint called equally as pointedly for specialization.

Dr. Hodgen deplored the fact that the textbooks available for the teaching of chemistry are all of medical or pharmaceutical authorship, and the burden of his address was a plea for the direction of effort toward the furtherance of a special application of the science of chemistry to dentistry, so that in time we may have a real dental chemistry.

He dwelt upon the value of theoretical chemistry and claimed that it was absolutely essential to have a full comprehension of the theory before a complete understanding of the practical part of the science could be had by the student.

In closing Dr. Hodgen said that the profession today is clamoring for help in plastic filling materials, especially in cements and in porcelain; that more knowledge was needed of antiseptics, disinfectants, germicides, obtundents, anesthetics and remedial agents, and in the physiological and pathological knowledge of dental tissues and oral secretions, and that dental chemistry might be made to "shed the light of noonday" upon these subjects.

In Section VI, Dr. C. S. Case, of Chicago, read a paper, introducing an original method of constructing a velum obturator. The feature of originality and peculiar value was in the gradual adaptation of the velum to the parts and permanent hard finish when perfect adaptation has been attained.

Dr. Case's method of construction is as follows:

An impression is taken and a velum is made in modeling compound covering the arch of the hard palate, after which tubes are placed in this velum along the edges of the cleft. A wire is now cut and each end is slipped into one of these tubes, this wire then being bent to approximate the edges of the cleft in the soft palate and to extend back the proper distance, this being capable of adjustment through adjusting the wire in the tubes. Through the use of this wire an unobstructed view is had, aiding in obtaining a perfect adaptation of the artificial velum to the soft tissues. A roll of modeling compound is now placed around this wire, when an impression is made of the entire velum and a metal mold is made in which the velum is made in soft rubber.

After having been worn some time adjustment may be made until perfect results are obtained, and then the velum is accurately reproduced in hard rubber.

"Anatomic Changes in the Head, Face, Jaws and Teeth in the Evolution of Man" was the title of a paper by Dr. Eugene S. Talbot, of Chicago.

This paper started out with the statement that in his evolution man has undergone many changes, that structures have been lost and others added, and that men, back to remote ages, have sought to discover the law governing these changes with the result that various theories have been adduced.

Empedocles, 495 B. C., outlined the doctrine of evolution, involving therein the survival of the fittest.

Aristotle regarded the subject from a standpoint of a law of economy of growth, the sacrifice of certain structures for the benefit of the organism as a whole, he holding the theory that a constant struggle was taking place for existence between organs with interaction consequent upon use and disuse of structures.

Confining the discussion to the face, the essayist referred to the fact that earlier scientists had, in considering it, confined their study to the bones of the face, not particularly considering the inferior maxilla in its relation to the upper jaw, but he stated that a study of such relation was called for by stomatologists in order to determine what may or may not be required in treatment of the jaws and teeth.

At one stage in the evolution of man the nose, jaws and teeth, or, inclusively, the face, were most essential in obtaining food, but as he developed, owing to brain increase, he acquired the power of obtaining and digesting food with less expenditure of physical strength. Disuse of the jaw and teeth has become less a factor in food getting, hence atrophy and radical anatomical changes.

In order of developmental atrophy of the face, the dividing line between the normal and abnormal in jaws and teeth would occur when the jaws, from the outside of the first molars, measure from 2 to 2.20 inches, and the antero-posterior atrophy brings the face on or inside of the perpendicular line. In a general way these two points are the lines of demarcation between the normal and abnormal condition and deviation from this rule indicates arrest of development, or degeneracy.

The paper dealt at length with causes leading up to arrests and excessive development in the child, and gave as the most ordinary cause a defective nervous system of a parent or the parents. Every nerve cell, he said, has two functions, one connected with sensation and the other with growth, and if for any reason the cell be affected, as by excesses, its function as regards growth becomes impaired.

This paper was awarded the second prize by the congress.

(*To be continued.*)

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EDITORIAL.

READING GOOD BOOKS.

It has frequently been urged that the dental profession is not a reading profession, that its members are more interested in the intensely practical than in the ultra intellectual, and that we can not well lay claim to much in the way of culture. It may be that some of this is true, and yet no man can edit a dental journal for any length of time without realizing that, after all, there are very many in the profession who do read, whether they read the right kind of literature or not. And just here is the point. There is such a temptation to read light and trashy matter as a supposed relief from the hard grind and sober occupation of every-day practice. But the taste for good literature is largely a matter of cultivation, and when one acquires this taste there is vastly more entertainment and diversion in reading good books than can ever be obtained from the more ephemeral publications.

The way to cultivate this taste is to cultivate it: that is, to procure good books and read them. It will soon be found that after reading the best literature for a time there will be little inclination to go back to the other. It is like trying to interest a man in the vaudeville who has heard the great masters render Shakespeare. Culture and intellectual attainment are largely matters of growth, and we, as a profession, owe it to our calling to cultivate a taste for the higher and better in life.

During the coming long winter evenings get out your books, map a course of reading, and select for this purpose the best volumes in your library. By spring, when it comes time to loll on the grass again, you will be a better man in every way for such a course.

THE EDITOR'S DESK.

THE POWER OF NON-RESISTANCE.

I am frank to confess that I have a long way to travel yet before I can quite bring myself to subscribe to the doctrine of the Sage of Russia in which he urges that, no matter what an individual does to you in the way of injury, you should make no resistance—at least you should not resist so as to injure the other. If I understand the peasant count correctly, there should be no such thing as punishment inflicted on an individual in the way of retaliation. Well, in my better moods I can come pretty nearly seeing it in this way myself, and, while there are some features of this theory which do not seem to fit into the necessities of every case, yet I most assuredly deplore anything in the nature of vengeance. This doing injury to people to "get even" with them has no place in my philosophy or my sympathy, and I often lament the misery which individuals bring upon themselves and others by such a course. The trite old saying that "two wrongs never made a right" is as true as anything in morals and ethics can be. If you deliberately set at work to do a man an injury because he has done you one, or you fancy he has, you invariably inflict more harm upon yourself than you do upon him. This is as certain as it is that fire burns.

The wonder of it is, to me, that people have not learned this truth long ago, and I am also in ceaseless amazement that many otherwise observant individuals fail to realize the subtle power there is in non-resistance. The mere statement of this principle would seem paradoxical, but a closer analysis and an extended observation of human events and of the motives of men will reveal the real force behind an attitude of calm self-control and lack of resentment in the face of injury. This does not imply that if a mad man or a mad beast comes at you with intent to do you bodily harm you are to stand with folded arms and not defend yourself. But this self-defense should be limited to your own protection and not carried into counter-injury to the other through resentment.

There are so many of the small affairs of life to which this principle of non-resistance applies that it seems strange that civilized people have not long ago learned the lesson. Take the one example f receiving an abusive letter from one who is stinging under a ncied wrong. The first impulse of human nature is, of course, to answer back in kind, and that is what the writer of the letter fully expects. It completely takes the wind from his sails for you to write a moderate, kindly-tempered and explanatory reply. He may swagger around among his friends and say that he "has brought you to time," but in his inmost heart he knows that he is the defeated party, and so do all his friends know it. And ever after he will be more afraid to attack you than if you had given him back what he sent.

Kindliness and consideration will win every time over harshness and retaliation, and, besides, it is only along these lines that true growth of character can take place, either in the individual or the nation.

REVIEWS AND ABSTRACTS.

Burchard's Dental Pathology.—New (second) edition. A textbook of dental pathology and therapeutics, being a treatise on the principles and practice of dental medicine. By the late Henry H. Burchard, M. D., D. D. S. New (second) edition thoroughly revised by Otto E. Inglis, D. D. S., professor of dental pathology and therapeutics at the Philadelphia Dental College, Philadelphia. Octavo, 650 pages, with 450 engravings. Cloth, $5 net; leather, $6 net.

The first edition of this work appeared in 1898, and the author, Dr. Burchard, did not live long enough to sufficiently reap the reward of his most worthy effort. The book created much interest at the time of its appearance, and now, after these years, Dr. Inglis has taken up the work of revising it and bringing it to date. The result is a volume which should find a place in every dental library. It is the most complete work of the kind in print at the present time.

Qualitative Analysis Brief.—By Allard Memminger, M. D., professor of chemistry, hygiene and clinical urinary diagnosis in the Medical College of the State of South Carolina; of general and applied chemistry in the College of Pharmacy of South Carolina; and member of State, National and International Medical, Pharmacal and Scientific Societies, active and honorary, etc., etc. Second edition, revised and rewritten. Pages, 124. Price, $1. Published by P. Blakiston's Son & Co., Philadelphia.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Cement as a Base for Fillings:—The value of cement as a base for gold or amalgam fillings can not be overestimated. I fill nearly all deep cavities with cement, afterward cutting out enough to form the ideal cavity.—*F. W. Stephan, Chicago.*

Alum for the Hands of Operators:—A piece of alum of suitable size kept in a convenient place will be found useful where the operator's hands perspire frequently. Draw the fingers over the alum once and it will usually be effectual.—*W. J. Hemphill, Dexter, Iowa.*

The Shape of Rubber Dam:—In cutting rubber dam for the anterior teeth a saving may be made by cutting it three-cornered instead of four-cornered. Take a square piece and cut it diagonally from one corner to another, which makes two pieces of convenient form for an operation on the front of the mouth.—*E. D.*

Pulps in Lower Molars:—When removing pulps from lower molars never allow yourself to be misled by thinking there is only one canal to be operated upon in the mesial root. Look well to the buccal and lingual, and do not hesitate to cut tooth structure until you are positive you have exposed the openings to all the canals.—*T. A. Lynch, Downey, Cal.*

Menthol Crystals:—Sometimes in operating for pyorrhea the tissues are sensitive. It may not be advisable in a given case to employ cocaine on account of contra-indications. In such cases pack the pyorrhea pockets with menthol crystals a few minutes in advance of the operation. It will be found a great relief to the patient, and is in every way a more pleasant application than cocaine.—*E. D.*

Favorable Location for a Gold Inlay:—Small cavities at contact point in molars and bicuspids, not involving occlusal surface, also distal surfaces of cuspids. We often find such cavities while preparing large mesio- or disto-occlusal cavities in molars and bicuspids.

Burnish platinum matrix into cavity and fill with solder, building out the contact point to proper proportions.—*W. O. Fellman, Oak Park, Ill.*

Mold for Seamless Crowns:—After the model for the crown has been carved, mix plaster and set model in so that only the cusps are covered. Remove the model, cut a guide groove in the plaster, replace model and oil slightly. Now run plaster around one side and when set trim it up and run the other side. This gives you a mold in three pieces, which has been found preferable for casting Melotte's metal. The gold may now be swaged by any of the methods, and after the swaging is completed boil in water to facilitate the removal of the crown from the metal die.—*Homer Almon.*

A Short Rule for Determining Per Cents in Mixtures:—Multiply 480 by the per cent desired and point off two right-hand figures. The figures at the left of separatrix will give the number of grains or drops; 480 is number of grains to the ounce. Examples: 480 × 4 = 1920; 19.20 = 19 1-5; 19 1-5 grains to an ounce of liquid, or 4 per cent solution. 480 × 10 = 48.00, or 48 grains to one ounce—10 per cent. The above may have previously been published, but I have never seen it. I have so often been asked how to find the per cent that I think this may be of interest.—*A. C. Hewett, M. D., Chicago.*

Local Anaesthetics:—All operations in the mouth should be preceded by the application of a local anaesthetic. Nothing acts so nicely as 2 per cent finely powdered cocaine added to one ounce of *original package Campho-Phenique.* This produces a saturated solution which, when applied on a large-sized pledget of cotton to the entire mucous surface of the mouth, completely obtunds local sensation and prevents pain incident to removing calculus, polishing teeth, wedging, removing loose roots, and prevents gagging and nausea in taking impressions, applying the dam and ligating the same.—*Burton Lee Thorpe, St. Louis, Mo.*

Method of Making a Gold Inlay:—Burnish a platinum matrix as for a procelain inlay, paying no heed to small openings in the platinum. Paint the surface of the matrix that comes in contact with the tooth to be restored, and all parts not intended to be covered with gold—where the matrix extends beyond the margins—with a thin mixture of prepared chalk and water. The matrix is now filled with the required carat of gold and the gold fused, using no flux. The gold will not flow beyond the margins. Set small inlays before removing the surplus matrix and allow the cement to set before finishing.—*F. W. Stephan, Chicago.*

Gingivarium:

℞	Ol. Caryophylli	ʒij
	Specific Cactus	ʒij
	Specific Echafolta	ʒij
	Acid Carbolio	gr xx
	Mur. Cocain (coarse Crystal)	gr v
	Glycerin ad.	fl ℥j

M. Sig. as directed.

It is antiseptic and a priceless adjuvant in treatment and permanency of cure in all pyorrhœal conditions of teeth. It should be used in pockets and on gums following instrumentation and cleansing at each operation, as a final application, and then by patients with toothbrush and massage of gums by both brush and finger tip *after each meal.*

In severe cases, instead of one + per cent of cocaine (five grains), 10 per cent (forty-eight grains), or even twenty per cent (ninety-six grains), of the cocain should be used by the *operator;* but as a gingivarium by the patient never stronger than 5 per cent should be used, and then only to the amount of a 2-ounce prescription.

Note.—I advise that the knowledge of the formula containing cocain be kept from the patient. Without that drug, patients should use it to perpetuate the cure, *which it will* if faithfully used with massage as above directed.

It (*sans* cocain) is the only dentrifice I use, and I expect my natural teeth, carrying bridges, will last as long as I need teeth.—*A. C. Hewett, M. D., Chicago.*

DOMESTIC CORRESPONDENCE.

OUR SOCIAL STANDING.

From a club standpoint we are under fire. Well, now, does any high-minded dentist vex his mind over this attack? We have been a practitioner of dentistry fifty-two years this 21st day of October, 1904, and we have always been content with our companionship. We have never had any temptation to be sorry that we were only a dentist, although we have met ostracism in some instances. While we have never felt in the least ashamed of our calling, neither have we meant in any way to dishonor it. We have a greater interest in doing all we can to settle the true status of our profession, for it is true that we are very much divided on this question. During the last twenty years quite a few have raised the query, "Are we a profession?" and the animus has always appeared to try to show that we never would be until we recognized that we are a specialty of medicine and must necessarily affix an "M. D." to our signature, and then any charmed circle would welcome us with open arms. It is no secret that such an experiment has been tried, and how much fruit (that remains) has it borne?

In an article published in the *Independent Journal,* entitled "Looking Back and Forward," we sought to show that Providence favored a conclusion of independence.

We have been quite misunderstood, but it does not change in the least our convictions. We are willing that time shall adjust these matters. When we know our own standing, other things of lesser importance will be taken care of.

"Our times are in *His* hands and *we* would have them so."

G. ALDEN MILLS, New York City.

NEW YORK LETTER.

The first society to meet this fall was the New York Institute of Stomatology, Tuesday, October 4th.

Dr. N. S. Jenkins, of Dresden, Germany, was the essayist. He presented a brief but interesting review of the past of prosthetic porcelain and described in much detail what he had accomplished. Models, finished pieces, etc., were shown to the members, illustrating most beautifully what decided esthetic effects can be obtained by a judicious use of this material. Dr. Jenkins claims to have perfected a prosthetic porcelain which will stand the test of wear in all particulars.

Dr. F. T. Van Woert, of Brooklyn, and Dr. Charles Allan, of Newburg, opening the discussion, were both eulogistic, claiming that there was no ground for argument.

Dr. Herbert L. Wheeler took issue with Dr. Jenkins as regards relative strength of the material—whether it is really a porcelain or only glass—and as to the value and ease of using the platinum and iridium which Dr. Jenkins advises.

Several other gentlemen participated, each one speaking highly of the new material.

Dr. Jenkins, in answering, briefly thanked the gentlemen for their interest and commended Dr. Wheeler for bringing out the questions he did.

At the Second District Society Dr. Robert H. M. Dawbarn read a paper on "Medical, Surgical and Dental Fees and Fee Bills."

His paper contained many suggestions which, while good for a physician, would be difficult for the average dentist to put in practice. He emphasized the fact that the dentist is invariably underpaid for his services; countenanced getting in touch with the family physician of one's patients on the ground that said physician could give advice concerning fees, etc.; referred to the fact that it frequently occurred that an operator would say when consulted regarding some given case, "Oh, I would have done that amount of work for very much less," and enlarged upon the injustice of such statements. He seemed to favor a sliding scale of charges; particularly did he advise the young practitioner to make judicious investments of his income in his younger days, so he would be provided for in later years. His idea regarding fees might be summed up in his own statement, "Get (or charge) *all* you can, and still retain the gratitude of your patients."

Dr. C. S. Stockton, in discussing the paper, said that it was a contest all the time as to what we should receive for our services.

In dentistry he claims that good looks and pleasant address always win, while absence thereof, loses.

He had written to several gentlemen in regard to the subject of Dr. Dawbarn's paper and they all agree upon a charge by the hour.

Dr. S. G. Perry spoke of the concise way in which Dr. Dawbarn had said that we should get all we could and yet retain the good will of our patients. He thought the subject one of the most complex—most difficult and many sided of all things we have to deal with. We need to consider the matter from the standpoint of justice to ourselves—to our families—and of charity for our patients. He thought fees should be based somewhat upon the answer to the question. "How much have we benefited the patients?" Emphatically said no one was so competent to judge as the operator. If he is competent enough to be trusted with the work he is safe in regard to the bills.

It seemed to be Dr. Perry's conclusion that fees could not depend entirely upon the length of time occupied, but that other matters must be considered.

Dr. Jarvie said the subject was complex—somewhat different from the case of the surgeon, because we rarely deal with life and death. While he would admit that time was an important factor, he would also consider one's skill, the nervous strength required, etc., necessitating a large radius of charges. He felt that to insist upon an hour rate brought us down to the level of the common workman (whereat there was applause).

In conclusion, Professor Dawbarn admitted that in dentistry *more* than any other profession, *time* should be considered. He claimed that the most grateful patients as a rule were those who had paid the largest fees.

Prof. Edward S. Peck, M. D., read a paper before the Odontological Society on October 18th, which was highly interesting and tended to show "The Pathological Relations Between Diseases of the Eye and Teeth Arising from Rheumatism and Gout."

Dr. Peck said the literature on the subject is palpably lacking. Rheumatism was a gigantic misnomer.

According to the gentleman there have been four theories for the development of rheumatism or gout. First, the nervous, wherein the nerves were supposed to be the center of disturbance. Second, the lactic acid; third, the uric acid theory, and lastly, the infective or microbic theory. Hereditary tendency of the disease can only be explained by the latter, as can fevers, etc.

Meat, game, fish contain six grains of uric acid to the pound; tea, 175 grains; peas, beans, etc., about fifteen grains to the pound.

Gout is really an inflammation of the fibrous tissues.

Active people are seldom affected by the disease, due to the activity of the skin.

Overeating creates excessive metabolism and is cause of gout.

Pericementitis—dental gout is strikingly shown in this disease. Frequently pericementitis goes on without deposits on the roots. The pericementum is practically a ligament.

Dr. Peck said that all the tissues of the eye were susceptible to rheumatism; the cornea, the white sclerotic coat, the delicate iris, the crystalline lens, the retina, choroid coat and optic nerve.

Dr. Francis Valk (an M. D.), said in discussion:

"The treatment consists of local and constitutional remedies and dieting.

"As to the relation between the eye and teeth and uric acid diathesis there is more or less uncertainty."

He does not believe any condition of the eye can influence condition of the teeth, except through reflex symptoms—through sympathetic ganglion. Conditions of the eye may be relieved by attention to the teeth in that way only—reflex—and does not arise from pathological conditions.

He can not see any relation between diseases of the eye and those of the teeth.

The Mitchell brothers, of London, were present at this meeting, and both spoke.

Dr. Harlan brought out the salient point of the evening that concretions on the teeth are accompanied with pus, which is clinically dissimilar to diseases of the eye.

The local dental trouble is probably due to a break in continuity. The condition in the mouth must receive surgical attention before there is possibility of a cure, whereas the eye is amenable to systemic treatment.

Dr. Brophy, of Chicago, also was present and said that he felt satisfied that the conditions described by Dr. Peck do exist, and that pathological conditions of the eye have their origin in the teeth.

Dr. W. W. Walker brought forth another point: the acid condition of the secretions. He said the subject of erosion of the teeth interests us very much. What causes it, acidity or alkalinity?

He described the treatment of erosion given by some professional gentleman in Antwerp, who dries the surface and causes to adhere thereon a composition of celluloid and acetone, for which he makes high claim.

Dr. Perry, in speaking, said that he has helped cases of erosion by covering the whole natural denture with a vulcanite plate at night which should, previous to insertion, be treated to milk of magnesia. He claims to have been the first to have called attention to the possibility of uric acid as the cause of rheumatism or erosion.

Dr. Peck said in closing the discussion: that there was no claim for positive analogy, except through nervous reflex.

For the first time in its history—now twenty-four years old—the C. D. A. of Northern New Jersey, held a clinic, on the occasion of its first fall meeting, Oct. 17. It was an *all day* clinic too—and mainly on porcelain inlay work. Drs. Head, Stone and Capon, of Philadelphia; Dr. Herbert, of Detroit, Mich.; Dr. Homberger, of New York, and others presented porcelain work; and Dr. Ottolengui, of New York, demonstrated the use of the Meyer pressure syringe in inducing tooth anesthesia, in the mouth of one of the most prominent dentists of New Jersey.

Arthur A. Jenkins Esq., son of Dr. N. S. Jenkins, exhibited both the Jenkins inlays, and the new prosthetic porcelain.

The evening meeting and dinner was attended by an unusually large number—over one hundred and twenty being at the dinner.

We noticed Dr. Brophy, of Chicago; Dr. Mitchell, of England, and Dr. Harlan, now of New York—at the head of the table. The paper of the evening by Dr. Head, on "The Shadow Problem in Porcelain Inlay Work," was read by Dr. Sutphen, as Dr. Head was obliged to depart for home early.

The dinner was "long drawn out," consequently, there was but little valuable discussion, which was unfortunate.

The First District Society had about eighty in attendance. Dr. Jenkins was the attraction again. He apologized for not preparing a paper, and then held the audience for about an hour. Seldom in our society has one attempted to engage an audience for that length of time, and rarely has an essayist held the attention of his audience so completely as did Dr. Jenkins in this informal talk. The secret of it was—the heart to heart—semiconfidence.

The subject of porcelains, from his standpoint, was gone over in a more complete way than it has ever been my pleasure to hear, and a number of new points elucidated.

He said that after the era of anaesthetics, antiseptics and bacteriology, finally had come a demand that something more than the cure of dental lesions be developed, something to restore teeth to symmetry and beauty.

Long ago this had occurred to certain men—Allen, Kingsley and others. (And, by the way, the latter gentleman, stooped with age, was present.)

The problem was a labor far too difficult for the ordinary man. The time was not ripe then. We had to evolve other things first, the rubber dam, cohesive gold, dental engine, etc. But the seed which those pioneers sowed began to bear fruit. An European practice has a certain great advantage. One has the opportunity of witnessing work of the most representative Americans, whose patients pass under his hands. I know of no school so instructive. Long ago I saw operations in porcelain and found them to be far more efficacious than operations in gold, which was the beginning of my researches in this chosen field. In the beginning platinum matrices were used; not being thoroughly successful I determined there must be a porcelain that would fuse below the melting point of gold, and eventually it has been found.

As to gold for filling, he said: Success depends on the operator. Gold on a diseased tooth is an illogical proceeding, always attended with uncertainty. Success of a porcelain filling depends very little on the operator. We have no right to make tooth restoration an offense to the aesthetic sense.

Then Dr. Jenkins told us a little of the unusual advantages he had for carrying on his experiments. Having purchased a country home outside of Dresden, which was everything that could be desired for the purpose of experimentation, a perfect place for laboratory, smelting and other rooms—and he had good friends in ceramics.

Said the doctor: Pardon me, but it is not possible for me to present this subject in any other than an egotistical way. But it is *not* myself, but what I have assimilated from others. Only today I saw in Dr. Kingsley's office carvings (of teeth) executed more than fifty years ago, the porcelain perfect.

In a description of his new prosthetic porcelain, he said the material was only possible by the use of an excess of kaolin; by proper union with feldspar and quartz, it imparts a degree of elasticity which prevents it from cracking, blow holes and bubbles. It will flow in the *finest* crevices, about pins and over all it becomes thoroughly attached to all kinds of porcelain teeth. It begins to melt at 950 degrees and completes the process at 1,000 degrees centigrade.

A cube, three millimeters, has endured a strain of three thousand pounds and more.

Dr. Perry had nothing but commendation for Dr. Jenkins. He said the sentence—"We have no right to make restoration an offense to the aesthetic sense," the most beautiful he has heard anyone utter.

Dr. Kingsley was called upon to discuss Dr. Jenkins' remarks. His voice is as young as it ever was, strong, active, thrilling.

"Forty years ago," said he, "I had an idea dentistry was more than mechanics. I wrote an article,—'Dentistry as a Fine Art,' for which I was ridiculed as a dreamer.

"I told Jenkins ten years ago he would never accomplish it, but he has and I congratulate him."

Dr. Sanger had to say that the present porcelain unfolds the future of dental prosthesis.

In my previous efforts the line of union of porcelain to porcelain teeth was the line of weakness instead of a line of strength.

Dr. Jenkins is one of the leaders of a great profession.

In closing the subject and answering a few questions, Dr. Jenkins said that one should use as a cement for inlays or fillings, the material with which one has been most successful in general practice.

Etch with a light touch of sandpaper disk and undercut where it will not weaken the filling. The edges of matrices should be burnished until they are *radiantly* perfect.

The New York Institute of Dental Technique held its October meeting at the "Chelsea."

This is a young society, composed of earnest seekers after truth and light.

After an enjoyable dinner, the President introduced Dr. Rulof Stanley as the essayist of the evening.

It is the desire of this society to make their meetings pre-eminently instructive—a post graduate course as it were—hence long dry papers are not sought for. Dr. Stanley being a student of Dr. Angle, is necessarily an ardent advocate of Dr. Angles' method for regulating.

He read a short paper on Orthodontia—illustrated at various points with models, and then sat down at a long table, around which the company gathered, while he demonstrated on the model the various steps in given cases. Questions were freely asked and answers given.

We have not been able to get in touch with the New East Side Dental Society, of which we spoke last spring, but hope to soon.

There has also been started a small local society among the dentists of Bayonne, N. J. (adjoining Jersey City), and we hope to have some good things from them ere long.

Yours truly,

THE BOROUGHS.

MEMORANDA.

OHIO STATE DENTAL SOCIETY.

The thirty-ninth annual meeting of the Ohio State Dental Society will be held at the Great Southern Hotel, Columbus, Ohio, December 6, 7 and 8, 1904.

S. D. RUGGLES, *Secretary.*

SOUTHERN BRANCH NATIONAL DENTAL ASSOCIATION.

The eighth annual meeting of the southern branch of the National Dental Association will be held February 21-23, 1905, at Memphis, Tenn.

J. A. GORMAN, *Cor. Secy.*,
Asheville, N. C.

REVUE INTERNATIONALE DE PROTHESE DENTAIRE.

An international review with the above title has been established in Paris, France, under the editorship of V. Dubois. We wish the new publication every success, and bid it a cordial welcome to our list of dental publications.

SPECIALIST IN PYORRHEA ALVEOLARIS.

The tendency of the profession is to divide more and more into specialties. Dr. Robert Good, of Chicago, announces that hereafter he will limit his practice to the treatment of pyorrhea alveolaris. There is a wide field of usefulness in this work and we wish Dr. Good every success.

THE HARTFORD DENTAL SOCIETY.

At the annual meeting of the Hartford Dental Society, held October 10th, the following officers were elected for the ensuing year: President, Dr. G. M. Griswold; vice-president, Dr. C. E. Barrett; secretary, Dr. A. E. Cary; treasurer, Dr. E. R. Whitford; executive committee, Dr. E. H. Munger, chairman, Dr. W. S. Youngblood, Dr. A. A. Hunt; librarian and curator, Dr. Hugh Dryhurst; historian, Dr. Henry McManus.

COLORADO STATE BOARD OF DENTAL EXAMINERS.

The regular semi-annual meeting of the Colorado State Board of Dental Examiners will be held in Denver, December 6th, 7th and 8th.

The examination will be both theoretical and practical and applicants for the examination must be prepared to do such practical work as is required.

All applications must be filed before December 6th.

M. S. Fraser, *Secretary,*
407 Mack block, Denver, Colo.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The South Dakota State Board of Dental Examiners will hold its next regular session for the examination of candidates at Sioux Falls, S. D., Tuesday, December 6th, beginning at 1:30 p. m. All candidates will be required to bring operating instruments prepared to do all kinds of clinical operative work; also a bridge of not less than four teeth, including one Richmond and one gold shell crown invested ready to solder. All candidates must positively send their application to G. W. Collins, secretary, Vermillion, S. D., not later than December 2d.

PROPOSED DENTAL CONGRESS.

Editor Dental Review:

Will you please announce through The Dental Review the proposed Dental Congress to be held in this city about the time of the meeting of the American Medical Association, July 11th to 14th, and urge the attendance of Eastern men?

We can promise them, in lieu of their usual European trip, a most delightful and instructive vacation, as well as a meeting of great professional interest.

By proper routing Yellowstone Park, southeastern Alaska, Puget Sound on the north and Yosemite Valley on the south may be visited during the trip.

A preliminary committee has been formed from the State societies of Oregon, Washington, California, Idaho and British Columbia, and we expect additional members from other States west of the Rocky Mountains, but we are particularly anxious to secure the attendance of prominent Eastern men to lend interest and assist us with the program.

Yours very truly, Arthur W. Chance, D. D. S., M. D.,
Secretary Temporary Committee.

RECENT PATENTS OF INTEREST TO DENTISTS.

770,162. Dental tool. Rolla M. Chase, Bethel, Vt.

770,066. Dentistry. Daniel T. Hill, Syracuse, Neb.

769,758. Dental instrument. John Mills, Brantford, Canada.

770,115. Dental appliance. Fletcher C. Rood, Walla Walla, Wash.

770,400. Rotary tooth brush. Homer E. Tague, Indianapolis, Ind.

770,854. Combined mouth prop and mirror, cheek distender, etc. William Hare, Danville, Ill.

770,853. Combined mouth prop, tongue protector, etc., for dental use. William Hare, Danville Ill.

770,768. Device for securing bicuspids or molars in crown bridge work. John R. Mitchell, Perth, Canada.

771,961. Support for dental engines and spittoons. William B. and E. P. Alford, Sumter, S. C.

772,324. Root-extracting forceps. Nelson D. Asdell, San Francisco, Cal.

772,104. Artificial tooth. George C. Kusel, Devon, Pa.

772,304. Dental articulator. Frank L. Williams, Florence, Colo.

37,173. Design. Tooth brush holder. Adolph Gent, Hoboken, N. J.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

SANITOL GETS THE GOLD MEDAL.

The Sanitol Chemical Laboratory Company, of St. Louis, has been awarded the gold medal on all the Sanitol products by the Louisiana Purchase Exposition. These products consist of Sanitol liquid, tooth powder, and tooth paste.

INSTITUTE OF DENTAL PEDAGOGICS.

Institute of Dental Pedagogics will hold its annual meeting at Louisville, Ky., December 28, 29, 30, 1904. This has come to be the most important gathering of the year, and no dental teacher or practitioner interested in dental education can afford to miss the session.

H. B. TILESTON, President.
W. E. WILLMOTT, Secretary.

DR. L. A. GEBHARD MURDERED.

Dr. L. A. Gebhard, one of the most promising young men of the profession, was murdered in his office at New Ulm, Minn, Tuesday evening November 1st. Up to the time of going to press no trace of the murderer has been found though a reward of $1,500 is offered. Dr. Gebhard was universally respected among his acquaintances and in the profession. He was a graduate of the Chicago College of Dental Surgery and had only been in practice a few years.

THE

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POSSIBILITIES OF BAKING HIGH FUSING PORCELAIN AT THE MELTING POINTS OF GOLD.

BY C. M. BALDWIN, D. D. S., CHICAGO.

Probably a large proportion of porcelain workers rely upon "*the* melting point of gold" as a means of knowing the degree of heat in the furnace.

Evidently this practice is based upon the supposition that "*the* melting point of gold" indicates a definite and unvarying degree of heat, therefore that it is a reliable foundation from which to time the bake.

It must also have been supposed that "*the* melting point of gold" always meant that the porcelain was heated to a certain temperature, and that both gold and porcelain were equally heated.

It is the purpose of this paper to demonstrate that gold does not always melt at a certain temperature, but that it melts at different degrees of heat, according to the varying conditions.

"Every substance begins to fuse at a certain temperature, which is invariable for each substance if the pressure be constant."—Physics, Atkinson.

Gold melts at a certain temperature when the conditions are the same.

Probably no two furnaces heat exactly alike if used in different offices, as they will vary with the electrical current, and the wiring and entrance of each furnace may differ slightly or considerably.

The intensity of the current received by the same furnace may fluctuate, sometimes making it necessary to use a higher step than usual for the same kind of bake.

I have never known of porcelain workers having questioned the uniformity of "*the* melting point of gold" in the furnace.

One great defect of the gold guide has been that it melted too long before the porcelain fused, allowing too many chances for uncertainties in the bake.

A well known porcelain worker allows from five to six minutes after gold melts for baking crowns.

After the gold melts the heat increases continually until the maximum temperature has been reached that can be developed with the step used.

The electrical current might be suddenly increased during a long "time allowance," as may happen on dark days and late in the afternoon.

The ideal relation of gold and porcelain would be to so control the conditions influencing both as to cause the simultaneous melting of the gold and the fusing of the porcelain, thus eliminating the "time allowance" with all of its uncertainties.

After studying the tests that appear in this paper, it seems to be easily within the range of possibility for each porcelain worker to closely approach this ideal, and there is no doubt but that many careful workers may soon be able to bake at "the melting *points* of gold" without any "time allowance."

How can this desirable but paradoxical end be accomplished?

Is it possible to put gold and high fusing porcelain in the furnace, and, by taking advantage of the conditions there, bring about this seemingly impossible result?

Pure gold melts at 1913° *F., and high fusing porcelain requires from one to several hundred degrees higher temperature.*

When pieces of gold of different quantities were heated at the same time they did not melt alike, and when equal quantities of gold were placed in different parts of the furnace they did not melt at the same time.

Because of having used different kinds and amounts of scrap gold, cylinders, Moss Fiber, etc., for the gold guide, suspicions were aroused as to its accuracy and tests were made to find out what caused the variations.

The tests were made in a Hammond No. 1 electric furnace, supplied with the direct current (110 volts), but it has been tested when it showed 118 volts.

A tray was prepared with three shallow depressions to hold the gold.

The diagrams show the exact sizes, shapes and positions of the furnace floor, trays and depressions as used in the tests.

In each of the first seven tests a piece of pure gold was placed in each of the three depressions and heated until all of the gold melted, except that in test No. 6, one piece did not melt.

In test No. 8 but two pieces of gold were used, and test No. 9 consisted of one piece of gold, and a cube of porcelain.

The figures 1, 2, 3 indicate the order in which the gold melted, and the time shows how much longer pieces Nos. 2 and 3 required after the *first* "melting point of gold" had been reached.

With the exception of tests No. 5 and 6, the gold in each test was unequal in weight and varied in the form of its preparation, as would be apt to occur in practical work.

In the first eight tests either the second or third step was used, but after the *first* "melting point of gold" was reached no higher step was used in any test.

Reference to the diagrams will make the following tests clearer:

TEST NO. 1

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	A well condensed filling.
5 seconds	Gold No. 2.	36 gauge plate.
30 seconds	Gold No. 3.	Ball that had been pressed out of shape by the pliers so that it could easily be seen when it melted.

This first test demonstrates that there are *three "melting points of gold"* instead of "*the* melting point," and that there may be thirty seconds "time allowance" between *two melting points* of gold.

TEST NO. 2.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	A Pack's cylinder No. ¼.
7 seconds	Gold No. 2.	Foil pellet folded.
45 seconds	Gold No. 3.	Moss Fiber.

Three more separate melting points having a difference of forty-five seconds.

The gold melted in the order of their weight, the lightest first and the heaviest piece last.

TEST NO. 3.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼.
35 seconds	Gold No. 2.	Plate Scrap.
38 seconds	Gold No. 3.	Filling.

The filling melted thirty-eight seconds after the cylinder, and in test No. 1 the ball melted thirty seconds after the filling, indicating that there is about one minute difference between the melting points of the ball and the cylinder. (See test No. 8.)

TEST NO. 4.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼.
15 seconds	Gold No. 2.	Plate scrap.
45 seconds	Gold No. 3.	Moss Fiber.

This test gives the first hint that *position is an important factor in the heat problem* in the furnace. In test No. 3, gold Nos. 1 and 2 occupy the opposite positions to that in this test. The plate took twenty seconds longer to melt in the central depression than when at the end, taking thirty-five seconds longer than the small cylinder in test No. 3, and only fifteen seconds longer in this test, or a difference of *twenty seconds, due to position alone.*

This suggested testing the various positions on the floor, using exactly the same weight and form of gold, that all the other conditions might be equal.

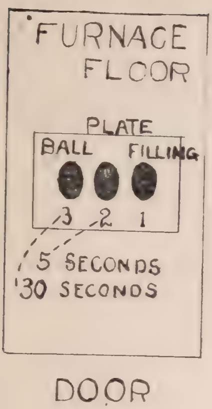
Tests Nos. 5 and 6 are the result.

TEST. NO. 5.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼.
2 to 3 seconds	Gold No. 2.	Pack's cylinder No. ¼.
20 seconds	Gold No. 3.	Pack's cylinder No. ¼.

This should give a fair test and a correct relation of the heat in these positions, as each piece of gold is equally distant from the door, which has always been known as the least heated portion of the furnace. The right end seems to be a trifle ahead of the left end at equal distances from the side walls, but the center again develops the twenty seconds, confirming the tests Nos. 3 and 4.

NO 1



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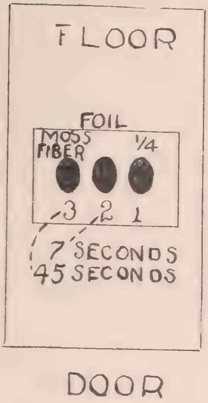

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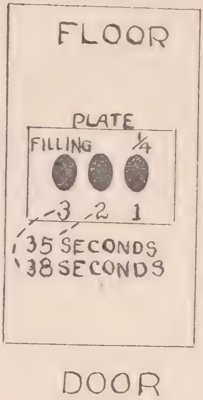

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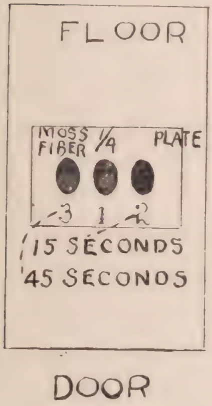

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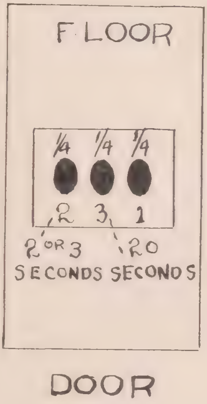
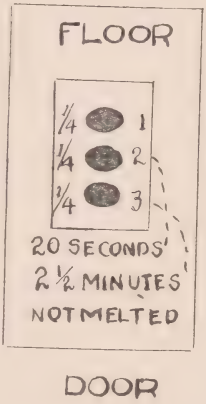


NO 6



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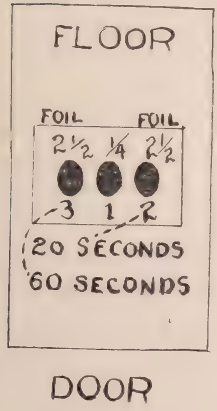
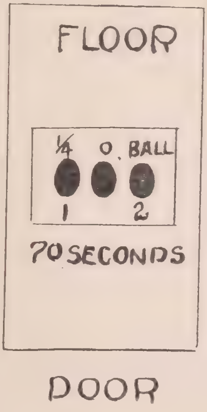
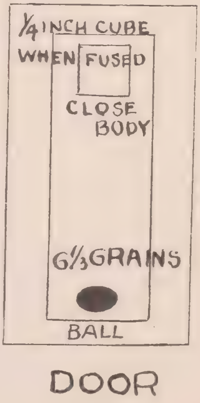


NO 8



NO 9



TEST NO. 6.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼.
20 seconds	Gold No. 2.	Pack's cylinder No. ¼.
2½ minutes *and unmelted.*	Gold No. 3.	Pack's cylinder No. ¼.

This proves to be one of the most surprising and interesting tests. The tray has been turned around as I usually place it for baking inlays and crowns. Gold No. 1 melted very readily and No. 2 followed twenty seconds later, but No. 3 did not change shape or show any indications of melting though left more than two minutes after No. 2 had melted.

It should be noticed that though far from the door, the difference of one-eighth of an inch caused a difference of twenty seconds between gold Nos. 1 and 2. (See test No. 5, gold Nos. 1 and 3.)

The unmelted cylinder was almost in the center of the furnace and but one-eighth of an inch nearer the door than No. 2.

This test is a very strong demonstration against "*the* melting point of gold" and "time allowance" from such a very changeable foundation.

TEST NO. 7.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼.
20 seconds	Gold No. 2.	Foil pellet folded.
60 seconds	Gold No. 3.	Foil pellet folded, discolored.

This test was made to correct test No. 2, if found wrong, as the gold No. 2 melting seven seconds after the small cylinder, if allowed the twenty seconds of position, as found to exist in later tests, would really be melting thirteen seconds before the cylinder No. ¼, and that would not coincide with one of the principles that seemed to be at the foundation of all these variations.

The cylinder No. ¼ was placed in the center, because it had melted first each time, and the center had been proved to be twenty seconds slower than the ends.

The two folded pellets were equal in bulk, being a little larger than a cylinder, No. 2, but the pellet No. 3 was considerably discolored.

The pellet No. 2 melting twenty seconds after the cylinder No. ¼ is an actual difference of forty seconds, if they were equally heated.

Gold No. 3, melting sixty seconds after No. 1, is a real difference of eighty seconds, or forty seconds due to the discoloration. Evidently gold much discolored should not be used in the furnace.

Gold Nos. 2 and 3 in this test weighed quite a little more than gold No. 2 in test No. 2.

TEST NO. 8.

Time.	*Order of Melting.*	*Kind of Gold Used.*
	Gold No. 1.	Pack's cylinder No. ¼, weight about 1-10 grain.
70 seconds	Gold No. 2.	Ball, weight 6 1-3 grains.

It is well known that it requires much more time to heat and solder a four-tooth bridge than is needed for a single crown.

In this test both pieces are in equally heated positions. The ball was about one-eighth of an inch in diameter, and the cylinder when melted was about one-fourth the size of a pin-head, while the proportions by weight are about one to seventy. The small ball could not be weighed exactly, as it was so very light.

It is a coincidence that the ball took seventy seconds longer than the cylinder, and that the weight is seventy times greater.

This suggests the possibility of a definite time relation that controls the melting of gold of different weights at the same heat.

The tests clearly demonstrate that the furnace is very unevenly heated, and that *there are many "melting points of gold"* instead of there being *"the* melting point of gold."

The tests have made the causes equally clear.

The two immediate causes of the variations are *position in the furnace* and *weight of gold melted.*

The principle that causes position to affect the heat is that *the heat increases toward the wiring and decreases toward the entrance.*

The principle that causes weight to affect the melting point of gold is that *increased weight of gold requires increased heat to melt it.*

As a result of these two principles a third may be formed, viz., that *a definite weight of gold in the same position in the furnace will always melt at the same temperature.*

From a cold furnace to "the melting point of gold" of any weight in any position is liable to take a variable length of time at different times, but it is possible to know when a certain heat is reached.

Knowing the principles that cause gold to melt at different times and temperatures, and that the porcelain is subjected to the same variable heat, should give the porcelain worker the key that would enable him to accurately control the variations.

The fusing of different porcelains is given by Dr. W. A. Capon, as follows:

Consolidated high	2192°	Whiteley's porcelain	2210°
Brewster's enamel	2084°	Close foundation	2300°
Brewster's foundation	2210°	White's inlay	2300°

Applying the principles to baking porcelain. the next test was made to demonstrate the possibility of the simultaneous melting of gold and baking of Close body.

TEST NO. 9.

Equal Time—Gold ball, weight 6 1-3 grains.
Porcelain, Close body, ¼-inch cube when fused.

The diagram shows the positions of the gold and porcelain, which were just one inch apart. A very much higher temperature was necessary than in any of the previous tests, as the *slow ball was placed in the least heated portion of the furnace.* The furnace was heated for twenty minutes on step No. 1, then the tray was placed in the furnace and the lever was left on step No. 1 nine minutes longer. Steps Nos. 2, 3 and 4 were each used for two minutes. Step No. 5 was use one and three-fourths minutes before the gold melted, and the current was immediately cut off.

The porcelain was left in the furnace until cool enough to handle.

The Close body was fused to a smooth glazed surface at "the melting point of gold."

This very satisfactory test proves that *all other porcelain bodies baked by dentists may be fused at the melting points of gold without any time allowance when the conditions are right.*

This test does not show the highest heat that could be developed at a melting point of gold, but it is high enough for all practical purposes, for Close body fuses at 2300° F., and this cube was overfused.

Finding this variableness in gold and furnace, and the causes that produce it, not only *give a safer foundation for a definite known heat* from which to allow time, but it affords the possibility of that *ideal relation of gold and porcelain* when both shall be acted on at the same time, and time allowance will become unnecessary.

To attempt to attain this ideal relation in practical work without sufficient tests must result in some overbakes. Undoubtedly the best way will be to gradually reduce the "time allowance" until none is needed.

Prior to making these tests it has been my custom to fuse Brewster's enamel body as inlays in fifteen seconds after *"the melting point of gold,"* and one minute was sufficient to fuse the same for crowns.

This statement does not convey any accurate information unless details are given, which has not been done usually. Accurate record has not been made of bakings before the tests, as I did not know what to compare except in the general way common to porcelain workers.

The statement will mean more when I add that these inlays were small and have been placed about half an inch deeper in the furnace than the gold, and the gold used has been either the cylinder No. ¼ or a small amount of scrap gold that would weigh more.

The crowns and gold have been placed about the same distance apart, but usually a larger amount of gold has been used, and for some time a small ball has been substituted.

Reducing the "time allowance" will be very easy, now *that we may have a sure base from which to work, and knowing that the highest heat limit needed has been reached.*

The melting of the gold in the furnace is such a gradual process that the early changes in form may be easily seen, and the current can be turned off just before the gold collapses, or at any time afterward.

These tests are only comparative, but clearly indicate that there are underlying principles which, when understood, will greatly aid us in fusing porcelain.

When two cylinders of equal weight are placed at equal distances from the door and equal distances from the side walls, they melt almost simultaneously, though they are nearly half an inch apart. (See test No. 5, gold Nos. 1 and 2.)

The gold and porcelain are not equally heated as placed in the furnace, because they occupy different positions.

If the gold is placed to one side of the porcelain, it receives more heat than the porcelain, which is usually placed midway between the walls, while if the gold is put nearer the door on the median line it is less heated.

It is easily seen how large bodies of porcelain are heated unevenly, unless some provision is made in the wiring or method of entrance, to heat the oven more evenly than in the form of furnace tested.

The cylinder No. 1/4 is easily watched and melts at the lowest heat or furnishes us with the lowest "melting point of gold" practical for the furnace.

By using cylinders of various sizes found to be best suited to the body to be fused, *one may always know the amount of gold used, therefore cylinders are indicated as best for small porcelain work, and when the cylinder is not slow enough or is too bulky, the ball of suitable size should be selected.* The repeated use of the ball will cause a slight loss in weight with each melting, and this should not be allowed to pass unnoticed.

It would seem quite necessary that each furnace should be tested after it is connected where it is to be used, to know what voltage is received, how the heat varies in different parts of the furnace and what weight of gold to use with the various kinds and bulks of porcelain to be fused.

Until an accurate pyrometer is generally used, *"the melting points of gold" may be made thoroughly reliable indicators of certain temperatures in the furnace,* and the gold can be watched with the minimum eye strain.

PRESIDENT'S ADDRESS.*

BY H. A. SHANNON, D. D. S., LINCOLN, NEB.

Mr. Chairman, Members of the Society, and Visiting Friends: It affords me great pleasure to be with you on this, the twenty-eighth anniversary of the founding of this Society. In 1868 the organization known as the Missouri Valley Dental Society was formed, and was composed of the dentists of western Iowa and Nebraska. This organization held regular meetings until and including 1876, at which meeting this society disbanded, the members from Nebraska agreeing to meet in Lincoln the following spring and the result being the formation of the Nebraska State Dental Society. The first meeting was held in the office of Dr. S. H. King, who was also the first president, there being about eleven in attendance—somewhat of a contrast to the meeting we have here today. Dr. W. F. Roseman, now of Sheridan, Wyo., who has, since leaving the State, been made a life member of this society, was elected recording secretary and served in that capacity for eight consecutive years. This society has gradually grown during these twenty-eight years from a mere handful until today we have an enrollment of something over a hundred. If it were possible to induce others to look upon these meetings as I do, we would have no trouble in increasing our membership to several times its present number. These yearly meetings can be made to serve as a post-graduate course to each one of us if we will only give it our support financially and also help out on the program in any way we can; even though what we give seems insignificant to us, it may be a help to some one else. If any member desires some certain thing demonstrated, he should feel at perfect liberty to ask the executive committee to furnish such a number on the program.

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*Read before the Nebraska State Dental Society.

By way of explanation, I have been asked several times after the program was out why we did not have clinics along a certain line, demonstrating certain things, not altogether by members of the Society, but some of those were from members of the Society. It is impossible for the executive committee to determine what is in the minds of the Society members unless they express themselves in some way, and if they would notify the executive committee along what line they would like to have work demonstrated, the committee would only be too glad to see that it is done. The committee is, usually, only too glad to receive suggestions from the members, for that gives them an idea of what is wanted.

Any person who is now a member, or who has been, can not afford to become delinquent in his dues, for by so doing he not only robs the Society of the fee which is justly due it, but does himself an injustice by remaining at home or coming to the meeting and enjoying those things some one else is paying for. The yearly fee collected from each members means a very little to each individual, but when they are all taken together it means a sum sufficient to secure the very best talent the country affords. The man who remains at home in fear that his competitor may get some of his patients if he leaves, or in hopes that he may get some of his competitor's patients while his competitor is out of town, makes a serious mistake. The person attending these meetings, from the opening day to the closing, will gain in knowledge sufficient to more than compensate the financial loss incurred by the closing of his office during so brief a period of time.

I would like to ask your indulgence for a few moments while I discuss some features which, I think, a new dental law should contain, and a few of the changes which should be made in our law.

First, I will take up the subject of violations of the law, and the means of raising a fund for the prosecution of these violators.

The experience which the State board of dental examiners and the dentists of Omaha have just had should be fresh and vivid enough to the minds of the profession of this State to make it an easy matter to convince the most skeptical that the time is now ripe for the creation of a fund to defray the expense incurred by the prosecution of such parties. I do not feel that the expense of conducting such prosecution should fall upon the members of the profession in that town or city alone, but should be defrayed from a fund accumulated by taxing each member of the profession in the State a yearly fee. By this means the board would be able to push the various cases that present themselves, even from the rural districts.

It is a well known fact that the board is always hard up, always in debt, and it has been, so far as I know, ever since we have had a board.

As our law now stands, the money collected by the State board is hardly sufficient to meet the necessary expenses of that body, and where additional expense is incurred it must be met by public subscription. If it is a known and well established fact that the State board of dental examiners have at their disposal a fund sufficient to conduct any and all trials, against violators, to the courts of last resort, we will not have so many poachers.

Secondly, I would recommend increasing the registration and examination fee collected by the State board. We find that in nearly all states the fee ranges from twenty dollars up. The money collected, under the present law, is hardly sufficient to defray the necessary expenses of the board, and, therefore, I would urge the increasing of the fee.

Thirdly, the members of the State board: In a prosperous and growing State like Nebraska, that can boast of her five hundred dentists, it seems a shame that they should ask three men to look after the interests of the dental profession for the paltry sum of three dollars a day, and stand their own expense out of this. The sum which they receive is about sufficient to pay their hotel bill, without any of the accessories which usually accompany such gatherings. The expenses at home are going on just the same as though their offices were open. How many are there of us who would not hesitate before accepting such an appointment? As I understand it, the pay only covers the actual time they are in session, which leaves nothing for the hours they devote to the profession when the board is not in session. With an increase in pay it might be necessary to limit the number of days each year the board could draw pay, as there might be a tendency to put in more time than is really required, and in this way reduce the amount collected, for the prosecutions, to such an extent that there would be no balance on hand for the purpose. I would suggest that the pay of the board be made equal, at least, to the income of the average dentist per day.

Fourth.—If some way can be devised, which will hold in the courts, to restrict the advertising men from violating the code of ethics in such a radical manner as they do, it will, undoubtedly, be a boon to the public as well as to the profession. In framing this law it might be well to employ the services of a good lawyer, so that each phase of the law will be constitutional and no loopholes left for offenders to crawl out of.

In order to secure the passage of such a law, and not have it torn to pieces by the legislature, it will require the unanimous and individual effort of each member of the profession in the State. A committee should be appointed, at once, to take this matter in hand and get it in condition at an early date. As soon as it is in the proper form to be presented to the legislature a copy should be mailed to each dentist, accompanied by a letter, setting forth the reasons why such a law is not only desirable but necessary. As soon as the election is over and it is settled who the members of the legislature are to be, an effort should be made by the dentists to see these men personally and impress upon their minds the necessity for the change desired in the law, and that this change is for the protection and welfare of the public as well as the dentists themselves.

In order that the membership of the Society be kept up and new members of the profession throughout the State be brought into the fold, it might be well to have a committee on membership, whose sole duty it will be to see that pressure is brought to bear on some who are a little slow in affiliating themselves with the Society. The executive committee has its hands full in preparing the program, without taking upon itself this additional work. A list of good, desirable men can be secured from the various dental supply houses.

In behalf of the members of the Nebraska State Dental Society, I desire to thank our visiting friends for the active part they have taken in helping to make this one of the best meetings in the history of the Society. I also wish to thank the members of the executive committee for the active part they have taken, and also to express my appreciation to the members for their hearty support.

THE AMERICAN DENTIST ABROAD: A TRIP AROUND THE WORLD.

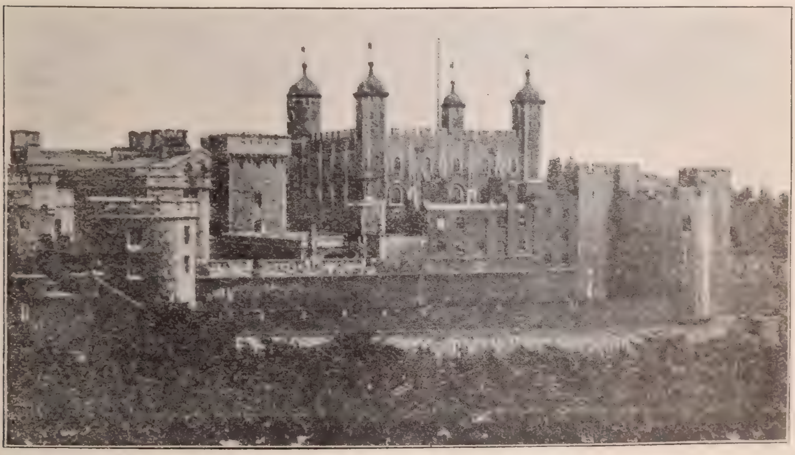
BY J. W. EGBERT, D. D. S., MADRAS, INDIA.

(*Continued from November number, page 1069.*)

After a delightful month in Paris I went to London via Havre and Southampton. There is a keen and good natured rivalry between the boys in Paris and the boys in London as to who are the best fellows, and woe to the man whom they both entertain if he have not a constitution of iron and an unlimited capacity for enjoyment. Historically London is more interesting to an American than Paris and with the help of Drs. William and Lou Mitchell and Kirk Davenport I had a good time during my brief stay there. The American dentists of London have made a great name for themselves and many of my patients in Madras and Ootecamund are patients of American dentists in England. In a great measure this explains the attitude of the English practitioner toward the Americans who invade their territory and one can not blame them. From London I went by the London and Northwestern to Edinburgh and thence to Nairn, Scotland, where I visited some Indian acquaintances and played some golf on the famous links of Nairn. The links and scenery are all that can be desired, but the weather was wretched—typical Scotch weather, I was told. A few days of it sufficed, for we Anglo-Indians

HOUSE OF PARLIAMENT, LONDON.

become so accustomed to brilliant sunlight that we can not stand the dull, cloudy days of England. From Nairn I went down to Glasgow and visited friends from Madras who were spending their leave in that city. I was there just in the midst of the "trades holidays" and it was a spectacle that I can never forget. The days were long. I could read a paper by daylight at 10 p. m., and the



THE TOWER OF LONDON.

trades and work people of Glasgow were out in full force. And what an array of wretched, miserable humanity. Men and women reeling drunk, quarreling, fighting, obscenity, and filthiness characterized them; they were undersized, underfed, coarse, brutal and debased to the last degree. I saw the same spectacle in Edinburgh and I wondered why in the most pious, protestant country of the globe that the people should be the most degraded? I had spent a month in Paris, had been on the boulevards and streets at all hours, had been in Mountmarte, the Latin quarter, St. Martin and at Maxim's, the Moulin Rouge, the French comiques, and I had only seen *one* drunken man. I wonder why? As I have thought over it it seems to me that England and America legislate too much regarding the personal liberty of their citizens. I went from Edinburgh down to London again and traveled all the way in a *dining car*. The English are waking up and the old style railway carriage where one is locked in a small coop for hours is rapidly becoming a thing of the past. The roadbed and line of an English railway is unsurpassed, but the conveniences are not "too many." From London I went to Liverpool and sailed for Boston on the Cunard liner "Servia," a ship of 16,000 tons and perfect in every appointment

LONDON BRIDGE.

for an ocean liner. Our voyage was an uneventful one and in due course we sighted our native land. I have never yet read a description that did adequate justice to the emotions that surge over and overwhelm one when he first sights the home land after a period of residence abroad, so I shall not try to describe them: but if any of you want to appreciate your country just come out here and live for a few years and I'll guarantee that you will appreciate your American birthright as never before. What shall I tell you of Boston and New York and Philadelphia and Washington and Chicago that you don't know? Shall I say that Boston is like an English city? that New York seems always to be torn up? Martain's is a glimpse of Paris? that there I heard "Hiawatha" for the first *but not* for the last time? that Gotham dentists were out of town for their vacations? that all was excitement over the coming yacht race? that Philadelphia is not so slow! that Dr. Edward C. Kirk is a prince of good fellows? or that the S. S. White people were most courteous and took me all over their factory for making teeth, etc., etc. I spent a most pleasant day with them. At Washington I paid my official visits and then went to see the new congressional library. I can not attempt a description but it immediately went down on my

CONGRESSIONAL LIBRARY, WASHINGTON.

mental calendar as one of the great buildings that I've seen. Chicago was the same old Chicago. The postoffice wasn't completed, the streets were almost as dirty and it seemed to me far busier than ever. Chicago is to me the ideal of an American city and while London is greater, Paris more beautiful, New York more congested, Chicago is the best to me and I believe that more business can be done in a less time and with less effort than in any city under the sun! Chicago dentists, the best fellows, the most genial, progressive, good-hearted, hard working men in the world! Wherever I go and say I am from Chicago I get a cordial greeting and a good time and all because of the fame as dentists and renown as hosts that you of Chicago have spread abroad by your peerless hospitality and matchless achievements in your chosen city. The names of Brophy, Johnson, Harlan, Gilmer, Black, Good are known everywhere and I have yet to find men who are more progressive or skilful than those of the Chicago College of Dental Surgery or Northwestern in your city. As it was the vacation season I spent only a few days in Chicago and went down to the old home in the country. The days spent in camping out, fishing, roaming over old time haunts were happy ones and did much to bring back needed health and strength and renew one's youth. After four months of this idleness and pleasure I had to think of getting back to the East and decided to go via the Pacific coast and Japan. On December 5th I arrived in Chicago and purchased my tickets through Messrs. Thomas Cook & Sons direct to Madras. My step-brother, Mr. Arthur C. Fort, was with me bound around the world on pleasure bent. My brother is a lawyer and if there is any class of men equal to the dentists of Chicago it is the lawyers. We were feted and dined by lawyers and finally on December 8th were escorted to the Wells street station and given an enthusiastic send-off. The other passengers in the sleeper were not sure just what was happening but we were and after the Limited had pulled out and we could collect our thoughts we decided that the legal fraternity was all right. We stopped a day in Minneapolis and I renewed my acquaintance with Dr. Alfred Owre, of the University of Minnesota Dental Department, whom I had met in Paris at the Congress of 1900. Dr. Owre was as young and as smiling as ever and showed me over the admirable institution of which he is in charge. The doctor used me as a clinic in Paris and for the benefit of those who do not know the

REDWOOD "GIANT," CALIFORNIA.

advantages of solid gold I want to state that the large contour mesio-occlusal filling which he made in my right superior first bicuspid is as perfect as when finished and the surface is as dense and smooth as that of a gold ring. The doctor promised us a visit in Madras in 1904 on his round the world trip and we shall be glad to see him, or any member of the profession who is girdling the globe and who wants to see the wonders of Madras and the Presidency. We traveled to Seattle via the Northern Pacific and at Spokane met an old Chicago boy, and whilom chum, of the Chicago College of Dental Surgery in the person of Dr. Howard S. Clemmer. Dr. Clemmer is very enthusiastic about the coast and is doing well. Seattle is a fine city and full of business and I believe is the coming coast city. Asiatic trade must come to the United States and Seattle is the American end of the shortest route. A friend whom I had met in Washington, D. C., Mr. J. Irving Knight, met us at the station and took us under his wing. We were only in Seattle fifteen hours, but we have a very high opinion of Seattle energy and hospitality. The ride of ten hours from Seattle to Vancouver was one of the most enjoyable I have ever taken. The big tree country of Washington must be seen to be appreciated, and after seeing the Fraser River country one is not surprised at the great influx of settlers into British Columbia. Vancouver is one of the busiest, cleanest little cities it has been my privilege to see and here as in Seattle we found the western hospitality that is proverbial. Mr. Henderson, a chance acquaintance, did everything in his power to show us his city and that means much, for western men are full of power. On Monday, December 14th, at 2 p. m., we sailed on the good ship "Athenian" for Hong Kong. The passengers numbered four, all young Americans and fortunately a congenial company. Dr. D. Arthur Smith was bound for Shanghai to establish himself in a dental practice. Dr. Albert Villiger, a Swiss-American, bound for the Philippines to work mining concessions. My brother and myself. The officers of the Athenian were the finest lot of gentlemen that it has been my privilege to meet in experiences on twenty-seven voyages and from Captain to cabin boy no effort was spared to make us comfortable and contented. The Vancouver harbor is one of the best in the world and very picturesque. As our voyage was taken at the worst time of the year the sea soon "got busy" and it was "high tide on the deck" all the time until we got to Yokahama. That voyage will remain long in my memory for it was the roughest I've ever taken. The fiddles were on the table for every meal but one and when the sea was at its worst and we were hove to and battling for life for three days it was well nigh impossible to eat anything. The grandeur of the mountain waves on December 28th can not be imagined or described. I am glad I saw them, but I don't want to see them again; it was sublime but awful. Wednesday night, December 23d, after our usual game of "draw" we retired and woke up on Friday, December 25th, Christmas day. When we crossed 180° W. we lost a day and it was queer. Xmas day was the pleasantest of the voyage and we had a really good day, which ended with a rattling good dinner in which every officer on the ship participated save the fourth, who was on the bridge. We had a choice collection of yarns that would do credit to Jack da Silva, Gordon White or Lou Mitchell.

(*To be continued.*)

GOLD INLAYS—CONTRACTION OVERCOME.*

BY DR. JOHN S. BATCHELOR, MILWAUKEE, WIS.

Gentlemen—The honor extended to me to attend a meeting of the Chicago Odontological Society and the request to demonstrate to the members any method I may employ in my practice, is most highly appreciated.

Every dentist with experience accumulates a treasury of methods —he accepts and practices any which appeal to his particular case.

In accepting your invitation to be present with you this evening I desire that it be distinctly understood that I come to you simply as a dentist, with no axe to grind and with only such methods or procedures as have been proven worthy in my own practice. If anything I may suggest will assist or interest you I will be amply repaid.

It has been my fortune from early childhood to be directly connected with dentistry, and the exhausting effects of long tedious operations has always deeply impressed me. These exhausting operations are not confined to the operator, but often are felt most severely by the patient. Therefore any method which tends to lighten the strain upon both operator and patient ought to be worthy of our serious attention.

Every dentist—every real dentist—has ideals, and all are anxious to work toward the ideal. It is not always practicable or possible to make our work conform to ideals; time, expense, pain, ability, all are factors in determining the character of the work to be performed. One thing is certain, that whatever is decided upon must be the best of its kind. We can not all confine ourselves to gold or porcelain fillings, if we did it would require a dentist for every large family.

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*Read before the Odontological Society of Chicago.

In THE DENTAL REVIEW for February last is a lengthy article reviewing the life of that pioneer of contour gold workers—Marshall H. Webb. Permit me to read an extract from it:

"Dr. Webb was a sick man when he left for London. He did in my mouth his last, but one, 'heavy job,' filling four upper incisors, using four books (half an ounce) of gold. I went to Lancaster, arriving on a Monday afternoon. He had done the preliminary work in Philadelphia. He began the next morning, and for two days I was in his chair, my mouth dammed from 8:30 a. m. to 5 p. m. I did not get out, and Webb was at me all that time except fifteen minutes for lunch. I went hungry, not even a sip of water, as we were both anxious that there should be no mishap.

"One other day he worked for me from three to five hours and finished about 10 o'clock Sunday morning—six days to fill four teeth." —Dr. William H. Trueman, in DENTAL REVIEW, February 15, 1904.

It goes without saying that the work was beautiful. If I had the ability to do this class of work, I have but few patients that would permit me to perform a second operation of this class upon them.

Dr. Webb was a classmate at the Philadelphia Dental College in 1866 wtih my associate, Dr. Arthur Holbrook, and I am told there was not a healthier, better physically equipped man than Dr. Webb, in that class of one hundred. Dr. Webb paid the penalty of an exacting method.

I am not going into the relative merits or demerits of porcelain versus gold inlays. Each has its respective place and it is good common sense when we get the right one in the right place.

When a man makes the assertion, and sincerely believes it, and what is more, puts it into execution—when he makes the assertion, that porcelain fillings are applicable to all places and conditions, why, it is simply a waste of good time arguing with him; time and failure alone will teach him. Failures above all others are our best teachers after all.

In bites of 10,000 pounds, more or less, to the square tooth, there is no porcelain or porcelain worker that can master this stress of mastication.

I have in mind a case of a man about forty-seven, square bite, crowns badly worn down, few proximal cavities, teeth all alive. I raised the bite about one-thirty-second of an inch and literally shod twenty-four teeth with gold inlay.

Tell me, Mr. All Porcelain Man, what would you do, put porcelain in? Oh, no, you would have hedged, saying: "Your teeth are in pretty good shape; follow the old maxim, 'Let well enough alone.' "

I have used porcelain for a good many years, back in the days when we had but one good one, Close's, and in my hands, at least, it has its limitations.

Gold inlays appealed to me from the first, and when Dr. Ames showed me some a number of years ago I went home full of enthusiasm, for I had any number of patients that had cement fillings in waiting for the time they would feel well and strong enough to have gold fillings inserted. They seldom felt strong enough, and cement was inserted again and the teeth were getting closer and closer at the necks and in time the very dickens was to pay.

I worked long and hard over the gold inlays. They turned out good, bad, and indifferent—never perfect. There was one vital thing about them that none of us mastered—contraction—contraction due to the cooling of the solder.

Even if gold inlays did turn out perfect in fit there is another objection, time. Time is our capital, and it takes a long time to make a compound gold inlay.

I believe, gentlemen, I have mastered contraction and saved a very great deal of time; also that by this simple method they are applicable to many small as well as large cavities.

I will not dwell much on the preparation of cavities except to say that they differ from those for porcelain, inasmuch as we depend largely upon cement to retain porcelain, and upon a step or lock of some nature for gold. Of course the cavity must be so prepared as to allow the withdrawal of inlay and we might change Dr. Black's well known saying: "Extension for prevention," to "extension for convenience."

THE PROCESS OF CONSTRUCTION.

Prepare the cavity so that the matrix will draw, having all margins slightly beveled; take a piece of 1-2000 platinum of liberal dimensions, press well into cavity with wet cotton pellets, pass a thin burnisher between the proximal walls, remove cotton, then matrix and trim surplus platinum leaving liberal amount overlapping margins. It makes no difference if the platinum breaks, except at margins, in that case place a small piece over the break, replace matrix in cavity; if a proximal one, use Ivory or some suitable matrix to give contour and aid in easy manipulation. Then pack the cavity with Watt's gold, preferably brick form, use care at the margins and as the gold is packed in it forces the platinum matrix to place. *Do not pack tightly,* using care not to fill quite to the masticating surface. Saliva will not affect the working of the gold. It is the packing of the crystal gold that prevents contraction.

To remove filling use two explorers. Imbed them well, one in the proximal surface and one in the crown, withdraw the filling steadily. The object of the two explorers is to prevent rocking and bending of any borders.

Paint the platinum with a thin coat of rouge moistened with alcohol, place the filling on the soldering block and flow 22-karat solder, using a *large brush flame.* Bunde & Upmeyer, of Milwaukee, make a 22-karat hard flowing solder which is almost the color of pure gold.

If the gold is packed right it will suck up the solder like a sponge does water, there will be considerable shrinkage of the gold; if, on the other hand, the gold retains its form the solder will not be absorbed and the filling will not be dense. Keep adding solder until the right contour is obtained, using care that there is a coat of solder over all exposed surfaces, this will obviate any tendency to porosity of the surface of the filling caused by over condensation of the Watt's gold. Wash the rouge off with ammonia or alcohol. trim up the filling roughly on lathe, roughen the surface for cementing with fine jeweler's saw and burs. Put in cavity and drive to place with wooden stick. Finish in or out of the mouth. I use Ames' gold inlay cement mixed thin and his flux added to liquid to retard setting.

If you follow these directions the result will be a perfect gold inlay of excellent color. After the cavity is prepared it will take from five minutes for a simple cavity to not exceeding thirty minutes for a compound one, that would take a skilled operator hours to insert with foil.

Many teeth can be saved by this method instead of crowning, giving infinitely better results.

For example take a molar where both proximal surfaces and crown are to be restored: First make an inlay using matrix on both mesial and distal surfaces, after soldering so that crown is flush with flat crown surface, swage pure gold or 22-karat cusp and sweat to inlay.

Anyone who tries this method and does not succeed, if he will write me stating what trouble he has, I shall be more than pleased to help him, not only for his sake but for the sake of a suffering public.

A SUCESSFUL ARTIFICIAL VELUM.

BY DR. H. J. JAULUSZ, NEW YORK.

The accompanying illustrations show an interesting case of restoration by a velum. The patient was a young man of 27 with

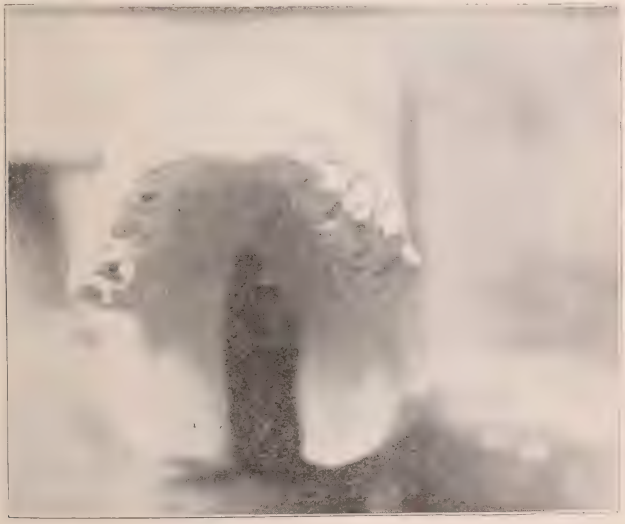

Fig. 1.

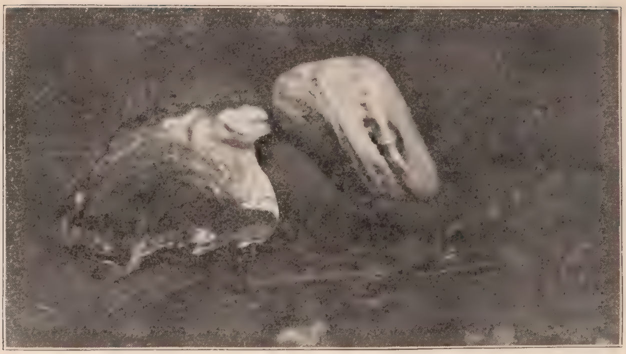

Fig. 2.

inherited syphilis, and previous to the insertion of the appliance unable to utter a word plainly. Fig. 1 shows plaster cast, Fig. 2 the plate and velum, and Fig. 3 the appliance in position. The result is that the young man speaks as perfectly as any one when the appliance is in place. In making such an appliance great care must be taken to have a perfect fit, so that the plate will not rock. The back part of the plate holding the velum is made detachable from the plate proper, so that if repairs are necessary the whole plate need not be made over.

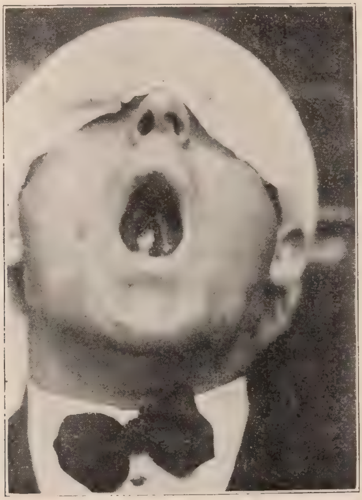

Fig. 3.

The method of making is as follows: Owing to the cavity extending into the antrum, plaster of Paris could not be used to take the impression, but I found that Excel Composition was a perfect substitute for plaster. Select an impression cup of suitable size for the mouth and then solder a tin or German silver extension on the back part to cover the soft palate and velum. Place composition into water 135° or 140° F., warm the cup before placing the composition in it, and then gently press the material to place in the mouth. Remove slowly and partially chill in water, then replace in the mouth while still slightly warm. After securing a perfect impression, pour as you would an ordinary case and dry the plaster model. Fill up the abnormal opening and make a Babbitt metal die. Swage plate of 22k, 30 guage, and solder clasps. Make a slide on the back part of the plate for the artificial velum to slip into. Make velum of rubber and see that it does not impinge too hard on any part to cause irritation.

Take great care in handling these cases to prevent infection particularly if there is the slightest discharge. Protect the hands with rubber gloves and throw away composition used in taking impressions.

The reason I use 22k. gold, 30 gauge, is because I usually cover the palatal surface with black rubber.

PRESIDENT'S ADDRESS, READ BEFORE THE NORTHERN ILLINOIS DENTAL SOCIETY, OCTOBER, 1904.

BY A. W. M'CANDLESS, D. D. S., CHICAGO.

Brothers, Members and Friends of the Northern Illinois Dental Society:

I wonder if you realize the pleasure it gives me to meet you once again—to look into your faces, to grasp you by the hand, to hear your familiar voices, to be in the atmosphere of your good fellowship, where nothing but good will prevails, where brotherly love pervades the air and disseminates itself amongst us.

How I do look forward to these annual events and see you with a mental vision, enjoying in anticipation the pleasure of the occasion. This to me is more than anything else like looking forward to the home coming of the boy who has been long away at school. It is so good to see the familiar faces again. Do you know, I look upon the Northern Illinois as an old sweetheart of mine? Long before I took up my residence in this State you took me up as an accepted suitor and my visits have been made with great regularity ever since, so that now and for many years the social side of these gatherings has not been second in importance to me. In how many ways these meetings are beneficial we scarcely realize.

It is often discouraging to a young man just out of college to try to attend a dental meeting. He has few, if any, acquaintances in the society, that spirit of good fellowship has not yet taken hold of his innermost soul; he goes home disappointed and asks himself the question, does it pay? He makes a mental resolution not to go again. But, oh, what a mistake. I have been through it, boys. Every one of us must experience the same thing, and blessed be he who is not swayed by that wrong resolve to stay at home next time. As the years go by and the silver threads multiply there's something that draws us closer together, that makes us mean more to each other, and the ties that bind grow stronger as each autumnal season bring to us this benediction.

I love this Society more than anything else of the kind on earth. There must be some reason for it. There is. Here are men of like tastes, congenial spirits and with it all an intense desire to know more and better how to adorn our chosen profession. There's something in this mingling together that brings out the good that is in a man and makes him feel at peace.

Again, this was one of my early loves. Chauncey Depew once said: "A man forms no deep attachments after the age of forty." This is a point I wish to impress vividly on the young men.

Attend these functions regularly. Attachments will spring up that will last through life and grow stronger and better and lovelier with the passing years. It is a great privilege to know that you do not grow old alone. You can not have too many friends. "A man that would have friends must show himself friendly."

A prominent dentist who signs M. D. after his name calls these societies kindergartens. He doesn't believe in having clinics at the national gatherings; he doesn't attend these local affairs; he doesn't need to. He cay buy a ready made gold crown and put it over the tooth—"I say put it over the tooth" advisedly—and get twenty-five dollars for it without even filling up the cusps inside with solder.

True, when the force of mastication wears a hole in those cusps the patient is apt to get discouraged but the dentist can at least make the same reply that the Jew made to the soldier who had bought a pair of boots.

These boots were fully guaranteed and when the soldier came back in three days with the boots all worn out the Jew exclaimed, "Mein Gott in Himmel, man, you haf been valkin' in dem boots. Dem is not infantry boots, dem is cavalry boots."

As for me I have tried attendance at dental conventions of all kinds—local, district, state and national—and I do not mind telling you that I prefer the kindergartens.

I think kindergartens have their place. This fact is illustrated in a circumstance that occurred recently. A kindergarten teacher was very enthusiastic in her work—and by the way, if you would succeed in anything you must put lots of enthusiasm in it—she asked the pupils one day: "Children, why am I like a clock?" Of course they didn't know. "Because I have a face, and two hands." The simile was a good one. Now, "Children why am I *not* like a clock?"

Long silence; finally a small Hebrew lad in one of the rear seats raised his hand and said: "I know, tacher! I know, tacher!" "Well Benny?" "Because you have no pen-*doo*-lum."

I made the mistake when during the first few years of my practice I did not avail myself of the opportunity of attending dental society meetings. I had formed a partnership with a practitioner much older than myself, who had formerly been a member of the State society but quit because he had a grievance—fancied or real—and instead of getting out of my shell and mixing with the good fellows in the profession I came to think that everybody else in the town who was trying to make a living along the same lines with myself was an avowed enemy. My! but was that not narrow. I just wish I could tell all the boys when they put up their shingle not to fall into the error I did.

But that was not for long. I soon made the discovery that the societies didn't need me nearly as much as I needed them, so I took a tumble to myself and have been benefited in so many ways that I have been attending societies ever since.

There is so much to be gained by contact and exchange of views and explaining of various methods. In the hotel corridors, between sessions, so many little points are picked up. I was instructed at college how to wrap cotton on a broach but several years after Garrett Newkirk showed me in the rotunda of the National Hotel at Peoria that I began at the wrong end of the broach. This was at the time of one of the annual meetings of the State society.

Here in our own little society I discovered that I didn't know how to fasten a ligature around a tooth when Doctor Wooley showed me the slip knot. You who have been attending these meetings for seventeen years can all testify that Doctor Taggart invariably bobs up with something new which is always practical and generally so simple and effective that we frequently go around the corner and kick ourselves for not thinking of it before. I could go on naming very many right in this little kindergarten of ours who have given me valuable hints and good points innumerable, but that would make my paper too long. I believe I was the first to suggest using the Kerr electric gold annealer for warming gutta percha when setting crowns and bridges and when I told Doctor Taggart about it he said, "why in h—l did *I* never think of that." But why enlarge on the manysidedness of the advantages accruing from attendance at dental meetings. I need not bore *you* with it for you always come. I feel somewhat as the preacher did when he was roasting the wicked—theoretically—when there were no wicked present. I do not reach the people who need this advice. But if what I say gives any encouragement to the young men present to persist in their attendance, even through discouragements, I shall feel that my little speech has not been entirely in vain.

I trust you will excuse the personal allusions in my paper, for I believe with the inimitable Chauncey (Depew) that "epitaffy" while living is preferable to an epitaph when dead.

For this seventeenth annual meeting a feast of good things has been prepared, both in the way of papers and clinics.

I congratulate myself that my sweetheart, who is now sweet sixteen and just entering upon her seventeenth year, has asked me to occupy the seat of honor at her party. I have further to congratulate myself on my able and indefatigable and tireless lieutenants, who have provided such a menu for our enjoyment.

Long live the Northern Illinois.

APICAL PERICEMENTITIS AND ITS RESULTS.*

BY M. L. HANAFORD, ROCKFORD, ILL.

I bring for your consideration a subject which was old to mustiness when Noah led his large and interesting family into the ark, for although it is not so recorded in written history, I have no doubt that if we could unearth the maxilary bones of Shem or Ham we would find evidence that at some time in their lives they suffered from sore or lame teeth. Not to weary you with a sermon which might here find a scriptural warrant, let us refresh our memories with a brief study of that dental malady which can be the cause of the most excruciating agony, and probably occasions the loss of more teeth than all other causes. I shall make liberal use of the work of Black, Garretson, Gilmer and others, and may not always mention the quotation marks.

CLASSIFICATION.

Some six or seven forms of diseases of the peridental membrane are recognized, but for my present purpose two only will be considered, apical pericementitis and alveolar abscess. *Apical pericementitis*—as its name implies—is an inflammation of the peridental membrane, having its beginning in the apical space, due almost always to death and decomposition of the pulp, and tending strongly to the formation of pus. If it is ever found associated with a living pulp, it is due to an extension of inflammation from a pulp hopelessly congested. Apical pericementitis usually follows the death of the pulp in two or three days, being, however, sometimes delayed for weeks and occasionally, though very rarely, is absent altogether during life.

DIAGNOSIS.

The peridental membrane, from its anatomical environment, is incapable of even a slight inflammation without becoming painful. The tooth is tender to touch and raised from its socket, making its diagnosis usually easy. Sometimes, however, the adjoining teeth partake of the symptoms to such a degree that a correct differentiation becomes a matter of some difficulty. Any one of several teeth seems about equally tender to percussion. In such a case the successive tapping of several teeth in rotation, noting carefully any difference in the response from the patient, and also any slight difference in sound (the affected tooth giving a duller sound), will materially aid in reaching a decision. If there be sensitiveness to thermal changes, it is probably a case of pulpitis, the exception being in case the pulp canal is filled with gaseous products of decomposition, when extreme sensitiveness to heat occurs from expansion of those gases, thereby causing pressure upon the peridental membrane by way of the apical foramen. *Chronic pericementitis* differs from the acute form in exhibiting less violent symptoms of the same general character; and absence of the tendency to the formation of pus.

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*Read before the Northern Illinois Dental Society.

TREATMENT.

The first procedure in the treatment naturally will be the removal of the cause, which is accomplished by opening the pulp chamber, thereby liberating the pent-up gases. Whether we will go further and attempt to remove the pulp may be a question worthy of careful consideration. Black says the pulp should be removed at once with barbed broaches, and undoubtedly such a procedure is perfectly logical in theory. In practice, however, it has been my experience that only in rare cases is it necessary or desirable to do so. A free opening, under rubber dam if practicable, with a careful application of peroxide of hydrogen several times repeated, followed with an antiseptic dressing, lightly applied and unsealed, rarely fails to give grateful relief. Several reasons for this treatment, as opposed to the attempt at thorough removal of the pulp and sealing of the canal, may be mentioned and seem to me sufficient. The tooth is exceedingly sensitive to pressure and the patient nervous and intolerant of anything that "hurts," so if one can relieve the tension easily and quickly he has gained a point. If a drill must be used, that of itself is enough to require a patient to endure. The pulp, whether congested or partially decomposed, is likely to be sensitive to broaching at the first treatment, whereas after the subsidence of inflammation the broach may be used with impunity. It will be noted that I prescribed the use of the rubber dam if practicable. This I would not always insist on, but where it can be applied with little or no pain, and especially if the case is that of a lower molar, the advantage of having the parts free from saliva and blood, of being able to see well and to apply an essential oil uncontaminated by the fluids of the mouth, fully offset the matter of time and inconvenience of its application.

If the canal be bathed a number of times with peroxide, then dried, and the oily dressing be applied on cotton sufficient in size to fill the cavity, the gases of decomposition will escape, while the water of the saliva will not penetrate for a considerable time. This treatment should be supplemented *as soon as possible after the subsidence of inflammatory symptoms* by a thorough cleansing of the pulp chamber under antiseptic conditions, the introduction of a mild antiseptic dressing like eucalyptol, Black's 1, 2 and 3, or oil of cajeput, and the sealing of the same in place. If the formation of gases is still feared, the seal may be punctured with a small instrument, although if the treatment has been thorough it will rarely be advisable. If pain recurs, the patient should return and the necessary venting be done by the dentist himself under conditions as nearly antiseptic as possible. The practice of leaving roots of teeth open to infection from the mouth on account of loose stoppings, or the removal of stoppings for any reason by patients themselves, in my judgment can not be too strongly condemned. Continued reinfection, thus prolonging the treatment unnecessarily, if not precluding the ultimate salvation of the tooth, are certain to follow, to say nothing of the great danger of discoloration. In addition to the above, local counterirritation is to be recommended in the form of capsicum plasters, cups, or the topical application of that old and time-tried prescription of Garretson's, viz., tincture of iodine two parts, tincture of aconite one part. A hot foot-bath is useful in deflecting the blood from the affected part, or a saline cathartic may be employed to reduce temporarily the blood tension.

If indicated, some one of the coal tar anodynes should be prescribed, as antikamnia, ammonol, phenacatin, etc.

If, in spite of treatment, resolution does not take place and marked improvement be shown within, say, three days, it is almost a certainty that pus will form, in which case we have an acute

ALVEOLAR ABSCESS.

The formation of pus in the apical space causes increased pressure and greatly aggravates the pain. The fibers of the peridental membrane are stretched and distended by the pus, thus pressing upon the bony walls of the apical space, causing absorption and a considerable enlargement in the line of least resistance before the external plate of bone is penetrated. The peridental membrane, although enormously swollen, rarely becomes detached from th root end, except in chronic cases, but when from any cause, as absorption of the root, such detachment does occur, the prognosis is much less favorable.

In that case the roughened root, in its turn, becomes an irritant or there may take place a deposit of calcareous matter at that point.

Until the pus has burrowed through the bone and reaches the soft parts, there is no cessation of pain, but as soon as this occurs the pain diminishes and the face begins to swell and continues until there may be great distortion of the features. At this stage a more or less softened lump appears over the affected root. Evacuation of the pus by lancing is followed by immediate relief, the swelling subsides and, if left to itself, the case passes into a chronic state, which is characterized by a slight though constant discharge of pus and no other inconvenience.

Pathologists describe three ways in which the escape of pus in an acute abscess may take place. In the first form it occurs as outlined above, viz., directly through the external plate into the soft parts. In the second form the periosteum is lifted from the bone, owing, perhaps, to the severity of the inflammation by which its attachment is weakened. In this case. if the pus remains long in contact with the denuded bone, there follows necrosis or death of a considerable area of it. In the third form the pus follows the peridental membrane down the side of the root and discharges at the margin of the gum, thus being easily mistaken for a pyorrhœal discharge.

The phenomena of the burrowing of pus in alveolar abscess are interesting and worthy of study. As a general rule, when an abscess passes into the chronic form. the discharge of pus continues at the original point of exit, but occasionally that orifice becomes closed and the burrowing takes most erratic courses.

Gravitation sometimes plays an important part, especially in the lower jaw, in which case instances are recorded where the discharge has taken place as low down as the clavicle. In the upper jaw the pus often burrows into the nasal cavity, the antrum, follows beneath the mucous membrane to the junction of the hard and soft palates or is discharged on the face.

BLIND ABSCESSES

Are those which have no external opening. The pus being either discharged through the tooth, or of so small quantity that that which is not tolerated by a gradual increase in size of the apical space is probably absorbed.

TREATMENT.

The first procedure in these cases is, of course, to evacuate the pus. If no external indication of pus is present the tooth should be opened and the abscess allowed to drain through the tooth. If the external plate of bone has been penetrated a bistoury should be used.

After the subsidence of the acute symptoms, say in a day or two, the pulp canals should receive careful antiseptic treatment, when, if the case is a simple one, entire recovery will shortly follow.

The treatment of chronic abscess varies with reference to the particular form of the disease. In simple cases the treatment outlined above will usually suffice. When, however, there is considerable injury or destruction of the tissues in the apical space or there is accumulation of serumal calculus or necrosis, more heroic measures are indicated. The entire tract of the abscess must be cleansed and disinfected. For this, peroxide of hydrogen, by syringe or pumping through the root, will be adequate for cleansing, and a stimulant antiseptic like Black's 1, 2, 3, will probably do the rest.

If the end of the root is denuded and roughened, or there is calculus, as can be ascertained by probing, the case will never recover until this condition is corrected. By applying cocaine locally the parts may be anæsthetized so that the root may be reached with a spoon excavator and smoothed, or amputation of the root end easily accomplished. In the latter case Dr. Gilmer directs that a hole should first be drilled through the root, into which a fissure bur should then be introduced and made to cut in either direction laterally until the root end is severed. I have performed this operation a number of times, finding it comparatively easy and effective.

In case of destruction of the external plate of bone by necrosis, the necrotic tissue must be removed and the parts treated on general principles.

Abscesses occasionally develop in cases of filled roots, owing to imperfect closure of the foramen or the neglect of antiseptic precautions at some stage of the operation. If such tooth contains a good filling or there is a good crown in place, the temptation is strong to attempt treatment by injecting remedies by way of the fistula, but nine times in ten, perhaps ninety-nine in a hundred, such attempts will result in only temporary improvement, if, indeed, so much. The roots must be reopened and treated as from the beginning before a permanent cure can be effected. Not infrequently two roots of adjoining teeth may be the seat of abscesses which have a common outlet. Failure to cure a case in a reasonable time by the ordinary means should suggest the possibility of another tooth being involved, and careful search should be made for it. All treatments for abscess should be thorough and not too often repeated. In this respect great progress has been made in twenty-five years, and doubtless the next two decades will bring many surprises. We are going to rely more upon Nature and less upon drugs, and one great point which we need to remember is that Nature sometimes needs to be let alone.

TWENTY MINUTES' REPORT OF ORTHODONTIA SECTION, FOURTH INTERNATIONAL DENTAL CONGRESS.*

BY LLOYD S. LOURIE, D. D. S., CHICAGO.

The section held four afternoon sessions, during which eleven papers were read. The stereopticon was used so extensively in illustrating some of these papers and the time allowed for this report is so short, that only a very meager synopsis can be given. However, if any paper is of special interest to those present, it may be more fully explained in the discussion.

In the opening address, the Chairman, Dr. Angle, remarked upon the rapid and gratifying progress of orthodontia in recent years, stating that it was due to scientific study of principles (in contrast with the previous custom of considering merely symptoms) and classification of the knowledge so gained, making it easily accessible for practical use. He believed that future progress would depend upon a continuation of effort along these lines. The papers which followed were good evidence that ideas are generally appreciated, and that the future of orthodontia will be well cared for.

Dr. Charles A. Hawley, of Columbus, Ohio, read the first paper, entitled "Determination of the Normal Arch and its Application in Orthodontia." The essayist had felt the need of a guide in forming the proper-shaped arch for teeth in malocclusion and, taking Dr.

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*Read before the Odontographic Society of Chicago, September, 1904.

Bonwill's rules as a basis, he has evolved a method of determining the shape of arch for each case proportionate to the widths of the teeth. The value of the idea was illustrated by the stereopticon, showing its application to normal and to abnormal sets of teeth. Dr. Hawley explained that he did not think it expedient to follow "hard and fast rules," but felt that such a guide would be of much benefit to those who have not developed the trained eye and fine judgment that are required where no other guide is used.

Dr. W. O. Talbot, of Biloxi, Mississippi, read a convincing paper, declaring "Malocclusion the Deformity of the Age."

The lecture on "Art" by Prof. Edw. Woerple, of St. Louis, was a most interesting and valuable one to those engaged in general practice as well as the orthodontists. With the aid of a profusion of stereopticon pictures, the development of art and of facial types were traced from earliest times. The lecturer clearly showed the fallacy of attempting to conform faces to any standard of beauty or set of lines, or even to an ideal type, such as the Grecian, typified by the Apollo Belvedere. He demonstrated the necessity of developing the artistic senses of balance, proportion, etc., and explained their use by analyzing various natural types and also facial deformities resulting from malocclusion.

This lecture was followed by a paper by Dr. William Davenport, of Paris, "Correction and Prevention of Malocclusion by the Bite-Guide and Other Methods."

The "bite-guide" is the same appliance for jumping the bite, recently explained by Dr. Ainsworth in the *International Dental Journal.* It is a modification of the Kingsley method of jumping the bite, the inclined plane being attached to the upper incisors instead of to a plate. The complete cases that were illustrated (and three of them showed excellent results at eight and nine years of age), and the discussion of the paper seemed to indicate that the appliance is most effective with very young patients. Those who discussed the subject were of the opinion that for the majority of jump-bite cases other appliances could be used to better advantage by the operator and with less inconvenience to the patient. The essayist recommended finger pressure treatment for very young patients, but failed to show any cases of effective treatment.

Dr. C. S. Case read a valuable paper on a subject that does not generally receive the consideration which its gravity deserves, "Principles and Methods of Retention." Various authorities were quoted to emphasize the necessity of obtaining the best possible interlocking of opposing teeth as the natural retainer, supplemented by retaining appliances that will hold teeth immovably and for a period long enough to allow them to become well fixed in new positions. Some cases, with inherited tendencies or otherwise, specially obstinate, require permanent retention. Dr. Case explained the construction and use of several of his favorite retainers.

"Spreading the Maxillæ Versus Spreading the Arch" was the title of a paper by Dr. R. Ottolengui, of New York, a split vulcanite plate with a wooden wedge being advocated to spread the maxillæ. It was explained that if the nasal tract were to be enlarged, it must be by spreading the maxillæ, and also that this movement of the maxillæ would move the teeth without tipping them, as is frequently done in common methods of spreading the arch. Those who discussed the paper conceded the advantages of spreading the maxillæ, but doubted if the split plate did it any more effectually than other appliances in common use, since the plate must be tied to the teeth, thereby transmitting the pressure through the teeth instead of directly against the sides of the maxillæ, as claimed by the essayist. Dr. Ottolengui said he had been using the method for fourteen years, but presented only one case, and that was not of such a nature as to establish his theories, so we must await additional evidence to decide the point in dispute.

Dr. John C. Grevers, of Amsterdam, Holland, made a "Proposal for an International Nomenclature for Various Forms of Malocclusion." The plan proposed was based upon the Greek word for inharmony, to which may be attached various prefixes to definitely describe the inharmony. The objection to this scheme is that each tooth must be described by a long compound Greek word, and a collection of them large enough to explain a case of malocclusion would probably be quite as confusing as Europeans have found the present American descriptions. The suggestion of an international nomenclature, however, is a good one, and the benefits quite obvious, so we trust that the future will bring about some developments along that line.

Dr. Joseph J. Rojo, of Mexico City, read a "Study of the Etiology of Anomalies in Human Teeth." He emphasized the importance of maintaining our study and research in etiology and gave evidence of very thorough preparation, and its conclusions will no doubt prove of much value.

Dr. William Pfaff, of Dresden, read his paper in German, so I can report only the title, which was divided into two heads: "(a) The Development of the Diagnostic Therapeutic Methods of Orthodontia and the Importance of the Etiology of Irregularities in Regard to Their Treatment. (b) The Value of Artistic Studies in Dental Orthopedic Practice."

"The Great First Class of Malocclusions" was the topic of an interesting paper by Dr. Herbert A. Pullen, of Buffalo, N. Y. Stereopticon pictures illustrated quite a variety of cases in Class 1 (Angle classification), showing by views before and after treatment the possibilities in correction.

Dr. Schroeder, of Grieswald, Germany, read in German his paper on "Prognathous Forms and Their Orthopedic Treatment." A German friend of mine informed me that it was a valuable study of prognathism, differentiating physiological from pathological, and attempting to harmonize the standpoints of the anthropologist and the orthodontist.

A BRIEF REPORT OF THE TRANSACTIONS OF THE SECTION OF PROSTHESIS—FOURTH INTERNATIONAL DENTAL CONGRESS.

BY HART J. GOSLEE, D. D. S.

The Fourth International Dental Congress is now an event of the past, and for the present at least lives only in the memory of those who attended. Since it was the largest and in many respects most successful similar gathering, however, it is quite safe to prophesy that the publication of the detailed transactions will prove that it was a history-making epoch for dentistry, and that the work accomplished was indicative of, and quite in keeping with, the progress of the profession. It will likewise also give proof of the manifold advantages of and benefits accruing from such periodical gatherings.

From a purely scientific aspect the proceedings of this congress will doubtless be recorded as having been eminently successful, and yet one could not help but observe that the general success from a

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*Read before the Odontographic Society of Chicago, September, 1904.

broad viewpoint was very appreciably marred by the division of the work into too many sections.

This made it impossible for many of the sections to have a respectable attendance at any of their sessions, and for those in attendance to do justice to their interests in more than one section. For this manifestly apparent and important reason it is to be hoped that the work of future congresses may not be so hampered, and that the various subjects maye be divided into fewer sections, or the program otherwise so arranged as to avoid such confliction.

The work of the Section on Prothesis will doubtless prove to have compared very favorably with that of other sections, and with one or two exceptions the sessions were well attended.

The program offered a varied list of more or less interesting topics, and while none of them was productive of particularly original or startling developments, still, at the same time, none was entirely bereft of scientific value. The addition to the literature which they will make when published will doubtless evidence the fact that the scientific phase of the field of prothesis is receiving the increased and growing attention which it merits, and that it is making strides in the direction of advancement which are quite in consonance with all of the various phases of the profession at the present time.

In this connection it was particularly gratifying to observe that the character of the essays presented, almost without exception, vouchsafed a higher aim in the pursuit of this important but often neglected branch of dental practice.

It will also be observed that in a program embracing thirteen papers representing many different parts of the globe, five of them were contributed by Chicago men. This is a record which, I am constrained to be immodest enough to say, might be expected, and yet it should be the cause of no little pride on the part of the profession of our fair city.

The chairman's address by Dr. C. R. Turner, of Philadelphia, was a timely and eloquent appeal for the recognition, appreciation and higher development of the possibilities of dental prosthesis. An extensive discussion was precluded, however, because of the small attendance at the first session.

One of the most interesting features of the proceedings was the presentation of a paper by Dr. Francisque Martin, of Lyons, France, describing and illustrating an ingenious case of oral prosthesis, wherein an appliance had been constructed which restored a section of the superior maxillæ and soft palate, and afforded opportunity for the artificial production of vocal sounds. In the absence of the author the paper was read by Dr. Charles Godon, of Paris. The discussion, while not extensive, was very complimentary in nature, and the section passed a vote of thanks to the author.

Dr. B. Platschick, of Paris, France, contributed two short but very practical little essays, one on a novel application of tube teeth in plate and bridgework, and the other on porcelain crowns. Both were illustrated by specimen work and liberally discussed.

Dr. Herman Rauhe, of Dusseldorf, Germany, presented a short paper on a new form of "suction chamber" for the retention of upper dentures. The principle involved was simply a modification of and improvement upon the old "Scott" soft rubber disk. While the improvement was ingenious, the whole tenor of the discussion indicated to the essayist that the employment of such devices had practically been abandoned in America and that the effort now was to effect and depend upon an equalization of pressure upon the tissues rather than to resort to any form of so-called "suction chambers."

Dr. Vincenzo Guerini, of Naples, Italy, made a splendid exhibit of ancient and modern prosthesis, showing the evolution of dental bridgework from the days of the Etruscans on down to the present, and of artificial teeth and dentures from the time of their advent. The exhibit was admirably arranged and highly appreciated by all who were so fortunate as to see it.

Several other papers by foreign authors were read, either in the native language or by title and recommended for publication in the transactions, each of which, of course, precluded discussion.

Dr. George H. Wilson, of Cleveland, Ohio, read a very interesting paper on the properties of plaster of paris and its compounds, in which was presented the results of some experiments which were materially different from those obtained by Drs. Spence, Prothero and others. The discussion indicated that the results were probably less accurate than those obtained by Dr. Prothero, and the question of the expansion and contraction of this material, and of its possible injurious effects on the construction of accurate fitting dentures was still left somewhat in doubt.

A very valuable paper on the "Mechanical Treatment of Congenital Cleft Palate" was presented by Dr. C. S. Case, of Chicago. The possibilities of the author's method of constructing artificial vela were evidenced by a patient wearing one, whose speech and pronunciation was so nearly perfect as to call forth much admiration.

Dr. B. J. Cigrand, of Chicago, read a very interesting paper on "Facial Guide Lines" as taught by artists and sculptors. The relation of these guides to normal physiognomy, and, in turn, to their restoration in the construction of artificial dentures, was beautifully shown by a series of lantern slides, which, together with the paper, caused all to concede the value of the possession of such knowledge and provoked much enthusiastic commendation.

"The Rationale of Materials for Base-Plates in the Construction of Artificial Dentures" was the subject of a highly interesting paper by Dr. R. C. Brophy, of Chicago. The author took occasion to point out the deleterious influences arising from the employment of vegetable compounds in the mouth, and made a splendid appeal for the subjugation of such materials and their substitution by those which are more physiologically compatible.

Another Chicago contribution of much merit was a paper by Dr. F. E. Roach on "A New Anchorage for Partial Dentures." The author prefaced the presentation of the subject by calling attention to the injurious effects often resulting from indiscriminate use of "fixed" bridges and by pointing out the numerous indications for "removable" structures. The ingenious method of anchorage presented was well received and elicited a discussion which indicated that it was thought to occupy a place of usefulness and practicability.

"The Mechanical Requirements and Cosmetic Possibilities of Modern Artificial Crown Work" was the title of a paper presented by the writer. In this effort the universal employment of ready-made porcelain crowns, adapted by grinding, was deplored; attention was called to the possibilities and advantages of porcelain crown work, and the prophecy that this type of crown for application to the ten or twelve anterior teeth, together with the gold crown for teeth posterior to these would constitute the universal, if not the exclusive, practice of the future was made.

In conclusion, I regret that this report might not have been made at a later time, in order that opportunity for a more comprehensive consideration may have been offered.

PRACTICAL THERAPEUTICS.

A RATIONAL TREATMENT FOR PUTRESCENT PULPS.

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO.

In the practice of medicine today there is an earnest effort being made to place the treatment of disease upon a rational basis. Many of the best medical colleges have well equipped laboratories and engage scientific investigators, who devote their entire time experimenting with various drugs and remedies upon the lower animals, thus developing that important branch of science, *Pharmacology*—a study of the *actions* of drugs and medicines upon the tissues, organs and functions of the body.

Dentistry has ever been a progressive profession, and it is indeed gratifying to know that an honest effort is being made by those who are especially interested in dental therapeutics to establish a rational treatment of all diseased dental conditions.

If there has been any one condition more than another which in the past has been treated empirically, I believe it to be that of *putrescent pulps*. The reason for the empirical methods of treating this condition, no doubt, is the apparent lack of interest which the profession has shown in the chemistry of pulp decomposition. All have been anxious to find a remedy which will, in the least possible time, completely destroy the infectious material; but few have realized that the only scientific method of applying drugs or remedies to the treatment of this condition is to have a definite knowledge of the end products resulting from the decomposition of the pulp tissue. The study of the chemical processes taking place in the rearrangement of the elements which constitutes the complex pulp tissue, when invaded by micro-organisms, is exceedingly interesting, and the knowledge gained thereby is of the most practical value to every practicing dentist. For, as I have intimated, the treatment of putrescent pulps can never be placed upon a rational basis until the chemistry of pulp decomposition is better understood.

In beginning this series of articles, I promised my readers that I would be as brief and practical as possible. It is with some little hesitancy, therefore, that I call your attention to the chemistry involved in the splitting up of the complex bodies which make the pulp tissue; but this I must do, however briefly, before attempting to outline a rational treatment for this condition.

From a chemical point of view, the pulp tissue differs very little from the other tissues of the body. All of the elements are present which are necessary for the formation of the three principal classes of compounds constituting most living tissue, viz., carbohydrates, proteids and fats; and it is the opinion of many investigators (a few doubt it, although they have so far failed to give a plausible reason for their doubt) that these three classes of compounds are present as such in the living pulp tissue. Time and space prevents me from entering into a detailed discussion of the chemistry of this subject. I will only ask you to remember, therefore, that the chief constituents of all living tissue is the class known as proteids; and it is largely the end products resulting from the putrefaction of this class which are capable of producing abscesses should they be forced through the apices of the roots. as I shall attempt to explain briefly. Whenever the pulp dies, from any cause, and is invaded by pathogenic micro-organisms, one of the first changes brought about in the dead tissue by these germs is to split up into simpler compounds the carbohydrate and proteid constituents. From the fermentation of the carbohydrates results such compounds as water, (H_2O), carbon dioxid (CO_2), and acetic acid ($HC_2H_3O_2$). The putrefaction of the proteids produce, first, hydrogen sulphid (H_2S), and ordinarily such ptomaines as putrescin ($C_4H_{12}N_2$); cadaverin and neuridin ($C_5H_{14}N_2$)—the last two being isomeric as shown by the formula. The ptomaines resemble, in many respects, the vegetable alkaloids, and by some investigators are called animal alkaloids. It will be noticed that they all contain nitrogen—that lazy, indifferent element. Putrescin and cadaverin are highly poisonous, capable of producing inflammation and suppuration. This, together with the fact that all of these ptomaines can be further putrefied, evolving ammonia (NH_3), should be remembered in applying drugs to correct this condition. Among the gases produced, then, in pulp decomposition, are carbon dioxid, hydrogen sulphid and ammonia. In those cases where they can not readily escape through a cavity, pressure is produced, thereby forcing the poisonous ptomaines through the apices of the roots into the surrounding tissues, causing septic pericementitis, and in many cases an alveolar abscess is established.

Before outlining my treatment, I desire to call your attention to the fact that many of our leading teachers of Dental Therapeutics classify drugs into two general classes—coagulating and non-coagulating. And in treating putrescent pulps they have advocated the uses of only those drugs which belong to the non-coagulating class. In my opinion, this classification has been misleading, for many dental practitioners have avoided using coagulating drugs and remedies in treating this condition for fear of coagulating the albumin which may be present. A representative of the class of coagulants is carbolic acid (C_6H_5OH). There are many good reasons why this and similar agents should not be used in treating putrescent pulps and abscesses without fistulous opening. However, I desire to say that the fact that carbolic acid will coagulate albumin has nothing to do with the contra-indication of the use of this agent in these cases, for the reason that there is no albumin present in a putrescent root canal to be coagulated. This statement I have briefly tried to explain here, but have treated this particular phase of the subject more exhaustively in other articles previously published.

In treating putrescent pulps we should ever have three factors in mind, viz.: First, *established asepsis;* second, *prevent recurring sepsis,* and third, *preserve the color of the tooth, or, if lost, restore it.*

In establishing asepsis we should select and use remedies which will chemically change the end products (infectious material) with the least inconvenience to our patients and to ourselves. This can be accomplished by adjusting the rubber dam, sterilizing the teeth included, and then with a large round bur, open into the pulp chamber, mechanically removing the debris, but making no attempt to remove the contents of the canals. Now *hermetically* seal into the pulp chamber, on a very small pledget of cotton, the following remedy:

℞ Tricresol,
Formalini, *a a* f℥i.
M. Sig.—As directed.

I prefer to seal with a quick setting cement, thus being certain that the remedy is hermetically sealed and avoiding pressure. This treatment can remain until you desire to have the patient return for a subsequent sitting. It can be changed the following day, or it can remain a week or more. At the second sitting, the dam being adjusted, the dressing can be removed, the canals thoroughly cleaned and dried with alcohol, after which the remedy can be placed in each canal on cotton and the cavity again hermetically sealed. It is well to allow this dressing to remain for at least three days, by which time it will have sterilized the entire tubular structure of the dentine, thus establishing asepsis. All that is necessary to prevent recurring sepsis is to thoroughly fill the canals. This remedy will not discolor tooth structure, and the fact that it not only can, but should, be *hermetically sealed in the cavity,* will prevent discoloration by the ingress of the fluids of the mouth. In case the color of the tooth was lost before undertaking the treatment, it can be restored by one or two applications of sodium dioxid ($Na_2 O_2$). The use of this agent will be explained in a subsequent article on bleaching teeth. Undoubtedly, like myself at first, some of my readers may hesitate to hermetically seal a cavity in a tooth which contains a putrescent pulp. The reason this could not be done in the past by the methods in vogue is that we were applying drugs empirically. From sad past experience we knew that some kinds of gases were evolved, which, if confined by hermetically sealing the cavity, would cause the tooth to ache, and if the filling was not punctured by the dentist or patient an abscess would develop. The treatment which I have here outlined is a rational one, for this remedy chemically converts the irritating gases and poisonous ptomaines into non-irritating and non-poisonous *liquids* and *solids.* Not only this; if I have been correct in my chemical deductions, these liquids and solids are themselves antiseptic and germicidal in character.

Another very good formula which can be used in the same manner is the following:

℞ Creosoti,
Formalini, *a a* ʒi.
Alcoholis, mxx.
M. Sig.—As directed.

Formalin and creosote, when mixed, do not make a clear solution. The addition of a small amount of alcohol clears the solution.

Formalin can be used alone in from 2 to 10 per cent solution. While both of these last named remedies will give good results, I do not think either as nearly correct from a chemical point of view as the tricresol and formalin mixture. It is my opinion that the fatty constituents of the pulp tissue remain practically unchanged in the process of decomposition and the tricresol disposes of the fats to advantage.

It is far better, in many respects, to apply this remedy on cotton. However, should a paste be desired, it can be made by mixing the remedy with precipitated calcium phosphate. In treating putrescent pulps in deciduous teeth, I have been making a paste in this manner, placing it in the pulp chamber and covering it with a quick-setting cement. After the cement has set, the cavity can be prepared and an amalgam filling inserted.

I realize that the method of treating putrescent pulps here given is a radical departure from those generally advocated in the past. But judging from the manner in which so many secret formulas for so-called "Putrescent Pulp Eradicators" and "Sure Abscess Cures" have been advertised and sold, it seems that our profession is sadly in need of a rational treatment for these conditions. I trust that my many readers will have as much satisfaction in using this remedy as I have had in the past. If the directions are followed as given, no bad results will occur. It must be remembered that formaldehyde is an irritating agent and in no case should this remedy be forced through the apices of the roots. Used as directed, the results will be gratifying indeed.

Our next article will be on the treatment of abscesses.

PROCEEDINGS OF SOCIETIES.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held September 19, 1904, with the President, Dr. J. P. Buckley, in the chair.

The program consisted of reports on the work of the sections on Orthodontia and Prosthetic Dentistry at the Fourth International Dental Congress in St. Louis, Mo.

Dr. L. S. Lourie

Read a paper entitled "Orthodontia."

Dr. C. P. Pruyn

Reported surgical cases in lieu of reading a paper on the work of the section of Oral Surgery at the Fourth International Dental Congress.

DR. HART J. GOSLEE

Read a paper on "Prosthetic Dentistry."

These two papers, as well as the cases reported by Dr. Pruyn, were discussed jointly.

FRACTURE OF THE SUPERIOR MAXILLA.

DR. C. P. PRUYN:

Mr. President and Members of the Odontographic Society: I regret very much that I am unable to read a report of the work done in the section on Oral Surgery at the Fourth International Dental Congress, but the announcement that has been read in your hearing explains the matter sufficiently. The chairman of your program committee said he was very anxious that I should appear on the program this evening, and I told him I would report some cases I have had in practice

I will report, first, a peculiar case that came to me a short time since of a gentleman, who was kicked by a horse about twenty hours before I saw him. The toe of the shoe had made quite an incision over the left eye. The heel part on one side broke the upper jaw or superior maxilla into a number of fragments, and quite a wound over the mastoid cells was produced by the other heel part. The injury the man sustained was quite severe. He was suffering from concussion of the brain and was unconscious. It was not necessary to give an anesthetic in performing the operation. After considerable difficulty, I succeeded in adjusting the broken fragments of the superior maxilla, getting them in fairly good apposition and ligating them with German silver wire, No. 22 gauge, which is very strong wire, and seems to have much greater tensile strength than silver or brass wire for such purposes. Then I wired the lower jaw to the upper. A sufficient number of teeth were left in the jaw, so that I could get adaptation and interdigitation of the lower with the upper teeth. But from the fact that the man was unconscious and the superior maxilla was broken into such a number of fragments, I felt I must have something more to hold the parts together than the ligation of the teeth and jaws to keep them in place. I applied a Barton bandage. First, I put over his head a towel, then I proceeded to apply a skull and chin-cap bandage (the Barton bandage), and encased his head and chin in a plaster-of-Paris cast, which was made perfectly immovable, and subsequent events proved that it was wise I did so, as the succeeding night the man rolled out of his bed at the hospital, and if I had not applied a plaster cast to his head and chin, all the work I had done on the teeth and jaws would have been destroyed. I got the fragments and parts in nice apposition, but the man never recovered consciousness; he lived about ten days, then died from concussion of the brain, resulting from the heavy blow he had received over the mastoid cells. The operation seemed to be a success in every particular. The case illustrated how easily we could use a plaster cast in cases of this kind without shaving the hair of the head by proceeding in the manner I have just described. In several other cases I have resorted to the same method, and it can be used successfully and advantageously.

FRACTURE AT THE SYMPHYSIS MENTI.

Another case was a fracture at the symphysis menti, the first I have ever had, because all, or most all of the cases that come to me of this class have fractures somewhere else. This man was in a fight the night before; he had undoubtedly received a terrific blow under his chin, as the tissues were cut nearly to the bone, and the lips were lacerated. We ligated this case, commencing at the second bicuspid on each side with the lower teeth, wiring from the second bicuspid forward, ligating in the form of a figure-of-eight from one tooth to the other till we came to the lower centrals, ligating from the lateral on one side to the lateral on the other. To make assurance doubly sure, I ligated the lower teeth to the upper. The patient is still in the hospital and is getting on nicely. A surgeon, who saw the case first in the hospital and turned it over to me as oral surgeon, expected we would drill through the jaw and wire the jaw together. He was quite surprised that it was possible to reduce a fracture of this kind without doing greater violence simply by ligation with German silver wire. Furthermore, he was surprised to think it would be possible to feed the man without extracting some of his teeth. You know it is possible, and very easily done, to feed a man without taking out any of the teeth, even though he has the full complement of teeth in his mouth. In all cases there is plenty of room between the tuberosity of the upper jaw and ramus of the lower jaw in which liquid food can pass. It is entirely unnecessary to extract any of the teeth for the purpose of feeding a man after the treatment of a fracture of the jaw.

Another case was a hospital case also. The man had been in some trouble, possibly a fight, and had sustained a very severe injury about the face in different places. Two or three days subsequently a surgeon thought the case to be one of necrosis. But upon careful examination it proved to be not a case of necrosis, but one of impacted third molar and the traumatism resulting from the injury he received was simply a coincidence in this case. I made a very generous incision inside the mouth, removed the pus that was enclosed, and then, by applying large hot water bags to his face, reduced the induration, and we had no cause for operating for necrosis. It was a case, however, which, upon meager examination, might be easily said to be one of necrosis and an operable case. But by a careful examination we avoided operation, and at a later time it would be right to remove the impacted tooth which was the cause of the trouble.

These few cases that I have cited will answer as an excuse for the report I was to have made this evening; but at a subsequent meeting, when I am put in possession of the papers of the Fourth International Congress, I shall take great pleasure in writing them up and presenting their salient points to you.

DISCUSSION.

Dr. Louis Ottofy (of Manila, P. I.)

Was invited to participate in the discussion. He said:

Mr. President: It affords me great pleasure to be with you again. I was especially glad to hear these reports from the sections of the congress, and although I was at St. Louis to learn everything I could, I was unable to attend those particular sections.

I was interested in Dr. Pruyn's remarks, in which he spoke of the application of the plaster cast. I have had during the last year in Manila three cases of fractures of the jaw. In one of them I am satisfied the method he has mentioned would have been valuable. In one instance there was a fracture at the angle of the jaw. The man, a vigorous, strong fellow, was hit by another in a fight and sustained a broken jaw. It was some days before he was brought to me, and in the meantime considerable swelling had taken place. The jaw was fractured in the region of the first and second molars, the splinters having been driven into the soft tissues, so that there did not seem to be any possibility of reducing the fracture. Subsequently the man had an attack of erysipelas and got well without requiring any further attention from me.

In another case the man, an Englishman, sustained a fracture of both bones of the forearm and of the lower jaw at the symphysis. The fracture was oblique; he lost one of the central incisors. In this case I was fortunate enough to be able to pare down the tissues and bring the fragments together, so that when there was complete union the loss of the one tooth was not visible.

Just to show you what difficulties we have to work under, I did not have a flask large enough to make the splint I wanted. I wanted to make a Kingsley splint for the case. It was necessary, with the aid of Chinamen and Filipinos, to make a flask for it. I made the splint for the case, adjusted the fragments, and obtained good union. We give far more attention to injuries in Manila than you do here, as infection is liable to occur. The healing of wounds is slow. Injuries are attended, as a rule, with more serious consequences than I have seen here, due partly to climate, but more to infection and, in a general way, to a run-down condition of the system of many who are resident in the tropics.

Dr. C. P. Pruyn:

Regarding the spreading of the maxilla *versus* the spreading of the alveolar process, as mentioned by Dr. Ottolengui at the congress, I want to say that this method of spreading the maxilla was practiced by my preceptor, Dr. E. D. Swain, twenty-five or thirty years ago to my personal knowledge, as I assisted him in making plates for the case. It was a peculiar malformation of the upper jaw. The jaw was contracted upon one side, bent forward at quite an angle, and had the appearance of my fingers as they are clubbed. He retracted the arch, spread the arch, rounding it somewhat, and from time to time took impressions. I made the plates; I was doing laboratory work for him at that time, and rubber plates were used. Dr. Swain made a grand success of the case. I cite this case to show that the method is not new.

Dr. A. B. Howatt:

During the early part of January a lady presented herself to me with a defective Logan crown attached to a lateral tooth. She did not like it because there was no gold showing. She said she was going to be married and wanted this tooth to look well. She wanted a *gold* crown. I tried my best to influence her not to have it put on, but she would go somewhere else to have it done if I did not do it. I attempted to remove this Logan crown, and in doing so I split the root. Of course, I did not want to tell her that. (Laughter.) And I did not tell her what I was going to do. I made up my mind that I would band the root together, making as tight a band as I could, put on a Richmond crown, leaving as much of the band to show as I possibly could. The band of a Richmond was not so bad as a gold crown. I thought it would satisfy her. I did that and two or three months afterward she came back with the tooth just beginning to abscess and I extracted it. My partner, Dr. Bassett, at this time, was extracting a tooth for another lady in an adjoining room, which happened to be about the same size. I took it immediately, cleansed and sterilized it thoroughly, filled the root, and put a temporary Davis crown on it and put it into my patient's mouth and ligated it into position. The root seemed to fasten all right. I treated the woman's gums possibly for two weeks and afterward put a Richmond crown on in the place of a Davis. I would like to hear the experience of other members in regard to doing anything of that kind, and what will be the ultimate result. It seems to me now to be in a perfect condition; it looks better than it ever did, and she has had no trouble whatsover.

Dr. Claude B. Roe:

I used to think that a great deal could be done in the way of transplantation and replantation of teeth. For three years I kept an accurate record of all such cases and out of one hundred cases I lost nine, up to the time I left that city. Since that time, of course, I have had no way of determining just how they have turned out. I used to treat molars as well as bicuspids and incisors, but I had bad results as a rule in cases back of the cuspid. I now draw the line at the cuspids, for the absorption seems to take place more rapidly back of that point. I have tried capping the tips of the roots and all sorts of methods, but I think those of you who have tried this process will agree with me that they will sooner or later absorb, but the life of certain teeth can be prolonged several years by this means.

Dr. Hart J. Goslee:

In this connection, I wish to state that I believe it generally conceded that the average maximum lifetime of teeth which are to be transplanted or replanted is about eight years. I think men who have had extensive experience in this special line, like Dr. Younger, have, by their records of cases, concluded that the average lifetime of such teeth is about the length of time I have mentioned.

I desire also to take occasion to reply to the remarks of Dr. Pruyn with reference to Dr. Ottolengui's method of spreading the maxilla. While it is very probable the essayist will reply to Dr. Pruyn in closing the discussion, still I am so familiar with the method advocated by Dr. Ottolengui, and presented by him at the recent congress, that I would not feel I was doing him justice did I not reply to Dr. Pruyn. Dr. Ottolengui does not claim any particular originality in the application of the principle he employs for spreading the two halves of the maxilla. He has simply added to the original method of Kingsley—which is similar to the Coffin plate—by the addition of a soft rubber hinge, and the insertion of a wedge of tightly compressed wood into a box in each side of the two halves of the plate, depending upon the expansion of the wood for the spreading of the maxilla. This is all for which he claims any originality.

Dr. Louis Ottofy (Manila, P. I.):

In reference to the remarks as to the desire to have gold show, I think Dr. Howatt is now satisfied that he made an error in removing the crown at all. It would be better if some one else did it. We are troubled with such cases all the time in the Philippines. The people are fond of show. They care for jewelry in every possible way. They have solved the question to their own satisfaction. They have little ornament, a small piece of gold in the shape of a pear, nicely polished, to the back of which are attached two small pieces of gold. A piece is put in the tooth, the end bent in the back, and a piece of gold placed in between the teeth. To appreciate this, a dentist told me it was a nice thing to have when patients must have gold. Furthermore, it was very proper. It has many other advantages; it can be taken out and placed from one side of the mouth to the other. (Laughter.) On special occasions it can be loaned to a friend for a wedding, etc. (Roars of laughter.)

Dr. A. B. Allen:

I wish to say a few words in reference to the attachment of Dr. Roach, as he is too modest to speak of it himself. I want the members of this Society to investigate it, as it is mentioned favorably in the paper of Dr. Goslee. It is one of the nicest attachments I have seen; it is perfectly practicable, and every dentist who is making partial dentures should know what it is. You have all seen the devices which are dovetailed and put on the outside of a crown.

The little attachment is constructed in the form of a split ball, which slides into an open faced tube. Dr. Roach can make this attachment adapt itself to a gold crown or with gold or porcelain inlay. He has an open face tube, and the attachment going into that has a split ball which will separate so it is easy for patient to adjust, and there is no fulcrum on that side of the tooth. Being spherical in shape, leverage is not brought on the tooth at all, but what there is comes at the gingival line, so that the tissues take the strain and not the roots. He tried this attachment on me and it has worked very successfully, and any man who is making partial dentures should look into it and try it. It is perfectly rigid, and you can get lateral motion or up and down motion, and not feel that in time the roots will become loose from the strain, which is sure to be brought on them by all the attachments placed on the market previous to this date.

Dr. F. E. Roach:

Dr. Allen has alluded to this device of mine, and as a description of it will appear shortly in the proceedings of the Fourth International Dental Congress, which most of you will see, and as Dr. Allen has described it, it is hardly necessary for me to say anything further regarding it. However, I will simply say that among the features of the attachment are the elimination of levers, simplicity of adjustment and tightening in cases of loosening of teeth by wear, etc.

Dr. Hart J. Goslee:

If you will permit me to speak again, Mr. President, I want to take this occasion to say a word or two, which I was hardly able to say in the report, about the attachment of Dr. Roach's.

I have seen a duplicate of the case made for Dr. Allen's mouth, and I have heard Dr. Allen say how splendidly it works. I know the difficulties under which Dr. Roach worked in this particular case, because three or four years ago I made an effort to put a similar appliance in Dr. Allen's mouth and made a failure of it, so that, better than anyone else, unless it be Dr. Allen, I can appreciate the difficulties encountered. Dr. Roach's success was due entirely to the attachment itself, and I think, without question, that it is the most practicable, and universally applicable of any of the removable attachments which we have at the present time, and I am pleased of the opportunity to pay this tribute to Dr. Roach.

Dr. Lourie (closing the discussion):

The only point in the report that has been mentioned in discussion is with reference to Dr. Ottolengui's paper upon spreading of the maxilla versus spreading of the arch, and it seems to me to have been misunderstood. I take this opportunity of explaining just what Dr. Ottolengui wished to bring out in his paper, and it was this: In most of the cases in which there is much spreading of the upper set of teeth necessary, it will be advisable and beneficial for the patient to have the maxilla widened. These cases are associated with lack of development of the superior maxilla and with mouth-breathing, consequently there is an abnormal development of the nasal tract, and the value in spreading the maxilla would be to increase the size of the nares, so that the value of Dr. Ottolengui's split plate with the wooden wedge lies in the fact that he claims it spreads the maxilla in the median line instead of spreading or moving the teeth in the alveolar process. One objection occurs to me would be that most of the cases in which spreading of the maxilla would be most advisable are those in which the crowns of the teeth are tipped away from the center of the mouth. Those are the cases in which pressure could not be put upon the maxilla through the medium of the split plate and wooden wedges because the sides of the plate would be wedging against inclined planes, if not ligated to the teeth, and if ligated to the teeth, the appliance may just as well be directly applied to the teeth. He does not claim originality for the split plate, as the Coffin plate has been used for years.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held April 12th, 1904, with the President, Dr. Elliott R. Carpenter, in the chair.

Dr. John S. Batchelor (of Milwaukee, Wis.)

Read a paper entitled "Gold Inlays—Contraction Overcome."

DISCUSSION.

Dr. W. V. B. Ames:

Mr. President and Gentlemen: I wish the doctor would tell why he believes this particular form of gold to be the best, and whether there is an objection to a crystal gold having a smaller crystal; and whether less dense or less resistant gold is better than gold having large crystals.

Dr. Batchelor:

The coarser crystal gold would be the best, if you could get it; but inasmuch as I do not pretend to fill up the cavity with the gold, I do not see that it makes any difference whether it is absorbed thoroughly or not. It works quite as well with Watt's or moss fibre gold. The coarser the gold, the better. You can not use De Trey's gold because it is too fine and soft. The point is to pack the cavity just right. If you pack it too hard it will not absorb the solder. If you do not pack it hard enough, the matrix will contract. I like to pack it a little bit harder around the margins to be sure that they are there.

Dr. Ames:

I never used platinum as thin as this, but I can see that this is largely the secret of getting good adaptation. I had the difficulties in the matter of porosity that Dr. Batchelor mentioned. If the entire contour is gotten with the crystal gold, you can build up to the extent of having the patient bite into the mass so as to have the imprint of the occluding teeth. I used this some time ago and found a porosity which might be smoothed over somewhat with a lower grade solder, but it was not satisfactory. There was an apparent swelling up of the mass of crystal gold just at the heat at which the solder would flow. There was a disengaging of something which caused an exaggerated contour and gave me a distorted shape. I could not account for it in any other way than that in the precipitation of this gold in the manufacture of the crystal gold there was present a bit of oxid of gold.

There are three oxids of gold. Some are reduced very readily by sunlight, and others are not. The presence of oxid of gold, would, at this high heat, cause an evolution of the oxygen and a destruction or distortion of the mass. It is possible to precipitate gold in a much coarser, more wiry or persistent crystal, and that would allow of bringing a greater force to bear against the matrix without condensing the gold thoroughly, and yet have the pores into which the solder would flow readily. Such a gold would be too hard to work; yet it would be possible to precipitate gold which would be better for the purpose than that which we use.

Dr. Truman W. Brophy:

I have been waiting for an opportunity for some little time to apologize to Dr. Ames for a criticism I made a good many years ago of this kind of work. Dr. Ames will recall the time when Dr.

Swasey made inlays. Whether Dr. Ames got his idea from Dr. Swasey, or whether Dr. Swasey got his ideas from Dr. Ames, I do not know, but between the two I learned about inlays. Ames has been making them ever since. Many have ridiculed the idea, but I am satisfied that his persistency and that of some other gentlemen has brought inlays to their present popularity. For the reasons the essayist gave, inlays are essential from a humanitarian point of view. They make it possible for people who are nervous or are invalids, and those who are busy, people who are unable to stand the strain of such an operation as the building up of a crown, to have their teeth attended to properly. An inlay reduces the physical effort of both patient and operator to a minimum.

While Dr. Batchelor was demonstrating the use of crystal gold in the making of part of an inlay. the thought occurred to me that, perhaps, it might be a good plan to make a matrix of gold and use that as a part of the inlay, the contour part,—filling the cavity with the crystal of gold in the same manner, and then making a strip of gold to pass around between the teeth to form a matrix, making it adherent to the mass as well as to the platinum matrix placed in the cavity. That would give us a smooth, hard surface; but I believe it would not be possible to make a better surface than what we have seen tonight. I am satisfied that some of us have had the same experience as Dr. Ames.

I am glad the doctor read this paper, and we all feel grateful to him for it because it will stimulate the making use of gold in certain places. I presume the doctor limits gold inlays, as much as possible, to cavities that are not conspicuous, and that in all others he prefers porcelain.

I am satisfied that the inlays he has shown us will, in great measure, replace gold crowns, because a tooth with an inlay in it is in much better condition than one that has been crowned, even though it was crowned by a very skillful manipulator. Even these sometimes show defects about the cervical border, because of the failure of getting absolutely perfect adaptation. With these inlays the teeth may be kept clean about the neck, and there can not be retention of the secretions any more than could occur in the case of a tooth that is perfectly sound.

There are many different ways of making gold inlays, and we are always getting new ideas about them. They have come to stay, and they are going to be a means of giving relief to the operator and to the patient. Thousands of people, today, are wearing cement fillings and gutta-percha fillings in their teeth because they did not want amalgam put in. They have not the strength to submit to long, tedious operations, which are necessary to have the teeth filled with gold. Therefore, we all hail the advent of the inlay with delight. Of course, we see scores of bad inlays, as we see scores of bad fillings and bad dentures, but that is not the reason for saying that inlays are not desirable. We always see bad fillings, bad plates, bad crowns and bad bridges, but the dentist who is desirous of accomplishing the very best results for his patient will strive hard to acquire that degree of skill which will make the insertion of inlays a success. Any man who has seen these beautiful inlays tonight, and who is disposed to be just, must admit that it is possible to do better in the management of certain cases by putting in inlays than to attempt to put in a filling of any kind.

For that reason this will work something of a revolution in the practice of operative dentistry. Whoever would be up with the times, and would acquire a knowledge of the most modern methods of preserving teeth, must know how to insert inlays successfully.

Dr. J. H. Woolley:

I am sure we are all indebted to Dr. Batchelor for this excellent presentation of so interesting a subject. There are, apparently, great possibilities in inlay work, and, as Dr. Brophy stated, it is a substitute for many of those hideous fillings that we see. We have been led to believe, sometimes, that the making of gold fillings is a lost art. It may be so, when we consider that the old operators could make restorations that to the newer man would seem almost impossible. We often see gold crowns covering broken down teeth, because of a lack of skill on the part of the operator to fill that tooth properly. He has hidden the cavity wtih a gold crown; it required far less skill than to fill the tooth properly. I can see great possibilities with these inlays, and I hope that Dr. Batchelor will continue with this work. It will be productive of much good.

The relation of gold inlays to the tooth structure must be considered, the age of the patient, his health, etc., in the selection of the filling material, whether gold or porcelain inlay, or some other filling. I would like to have the doctor dilate on this in his closing remarks.

Dr. Knowles:

I was very much interested in this paper, and also in hearing men like Dr. Brophy and others speak so well of inlays. The more I work in inlay work, the more I realize that discrimination is necessary. The principle of an inlay is a filling retained in a cavity by cement. We know that such a filling is less susceptible to decay than is a malleted filling, held in place by adaptation. This is probably due to the change in the teeth. Men have used cement fillings to check decay in mouths where there is a tendency to recurrent caries. I use cement almost entirely up to a certain age, until the tendency to decay has passed. Metal fillings in such mouths, no matter how perfectly made, are not as good as cement fillings.

I have heard the theory advanced that all metals have a tendency to contraction and expansion, depending, no doubt, on how it is manipulated. That is not true of the cement filling. It has only one disadvantage—its gradual loss in bulk. This is bad, because it destroys the shape of the tooth, and you lose the proper contact. If there is anything in inlay work that appeals to me, it is the possibility of restoring contour to a tooth. A tooth may be filled properly with any filling, but not properly built out, and the patient always is aware of some difficulty. With the inlay it is possible to restore more perfectly the contour than with any metal filling, because you do not have to polish after you put in the filling.

At the Chicago Dental Society the other night, the discussion was on porcelain inlays, and the only fault found with them was the breaking down of the porcelain. A few years ago a great bugbear with inlay work was that the inlays came out: but not today. This shows that there is a development being made in the preparation of the cavity. With a porcelain inlay we can make a tooth more nearly perfect than with any other filling material, except, perhaps, cement. The margins of a tooth are its weakest point. With the inlay there is no cement to wear off. Cement fillings do not wear from the margins straight down, but wear as deep as the cavity is wide. There is a cupping-out. Even if we have a poorly fitting inlay, it is a great deal better than a cement filling, because the cement does not wear any deeper than the margin is wide. It is very much the same as having a bottle filled with sand. You can wash it out at the top, but it does not wear any deeper.

These beautifully fitting inlays that have been shown us tonight are an advance over the older methods of filling with gold and amalgam. This method does prevent recurrent caries, a very important feature. It makes a more nearly perfect filling. Of course, gold inlays can not be used in all teeth, but they have their place along with porcelain inlays.

Dr. E. A. Royce:

I am glad to pay a tribute to Dr. Batchelor. I have experimented a little in the same line, but my experiments were absolute failures. The doctor has shown us something good, and I shall be very glad, indeed, to have him give me the use of his ideas so that I may try to emulate him. My trouble, to a great degree, was the too thorough condensation of the gold in the matrix, and, perhaps, a lack in the nicety and delicacy of manipulation in getting the matrix out of the cavity. I had difficulty in getting the solder into place, and have the matrix hold its own while I soldered. I had either a decided shrinkage or bending during the removal.

The gold inlay is bound to take a very prominent place in the practice of every dentist who is attempting to preserve the teeth. Its position in the practice of every operator is, of course, controlled by their personal likes and dislikes for the manipulation of gold as a filling material, and, possibly, to some extent, to the consideration they have for their patients. I listened to a paper a few years ago, in which the author said that he was proud to say that his gold fillings averaged three years in the mouth, and he thought it as good an average as could be expected.

Possibly some dentists that so freely condemn gold fillings had no better success with them than the author of the paper referred to.

I have been very well satisfied with gold fillings. They have done good service, and it is not such awful work to put in a fair sized filling. I think, in some cases, I should prefer to use gold as a filling material in a large cavity. But in many cavities, where we have been obliged to work amalgam or cement, I can see a great field of usefulness for the gold inlay.

The necessity of the durability of the cement seems to be reduced to a minimum in this make of inlay that we have seen tonight, because of the apparently absolute adaptation of the inlay to the walls of the cavity, and it is a revelation to me in inlay work. I have dreamt about these things, but I have seen but few of them either in practice or demonstrated. Whether a matrix for a porcelain inlay, where we make the inlay in the matrix, is either burnished or swaged into the cavity, we always have a space twice the thickness of platinum because few of us can cement the inlay in so that the distance between the inlay and the walls of the cavity will be equal on the two sides, giving us a comparatively large space between the wall of the inlay and the wall of the cavity for the solution of the cement. But with this work, I can see how the solution of the cement is reduced to a minimum, and, apparently, the inlays fit as do those where the cavity is of such shape that we are able to make the matrix on the outside of the impression for the porcelain inlay. Then, on removal of the matrix, the inlay practically will fit the cavity.

I wish to add my thanks to the doctor for coming here tonight and showing us this very valuable work on gold inlays.

DR. E. J. PERRY:

The doctor is entitled to our thanks because he has brought us something new—a method of producing successfully a solid gold inlay. I have made solid gold inlays, and I can confirm some of the statements he has made. I swaged my matrix, and I have used Watt's gold and welded it into the cavity solid, driving it in hard against the matrix, and only a few days ago I had a patient come back with one of them out because the solder did not run through the gold. I discovered this reason tonight. I have learned that I packed my gold in too tight, and I also filled the cavity too full, and also that the way to contour a filling is to put the matrix on and hold the platinum matrix in position and fill in the cavity, which really swages the matrix into the cavity itself.

This is a new thing of inestimable value to me. I would like to ask the doctor when he finishes the filling. How much he does in the mouth and how much he does out of the mouth.

DR. BATCHELOR:

That depends on the temperament of my patient. If the patient is nervous and high strung, I almost finish the inlay out of the mouth. I have not entered into the preparation of the inlay cavity, but they differ from porcelain inasmuch as we depend on a lug of some kind. I bevel the edge of the gold inlay instead of squaring it.

DR. G. W. COOK:

I am indebted to Dr. Ames for all I know about gold inlays. Some years ago I saw a mouth into which Dr. Ames had put a gold inlay eight or nine years before, and it was in such good condition that I felt then that there must be a field for such work; and from time to time I have attempted to do something in the way of gold inlays.

Dr. Batchelor's method is a new one to me. I have taken crystal gold and tried to fill cavities in a manner similar to his, but without a matrix; removing it and then flowing in the solder much in the same way. But I never got the adaptation of the platinum or gold matrix in the cavity as I should like, and I see now that the reason for that is that the thickness of platinum he uses is much more easily removed and gives a far better adaptation than the ordinary platinum matrix that is used.

The trouble I had in packing the crystal gold into the cavity was the distortion of the filling at some point, either while removing it from the cavity or from the flowing of the solder. The method of packing in the gold has been mentioned by Dr. Tuller. He did not show it to me, but I heard Dr. Ames mention it, and I have tried it. In some cavities I could adapt the crystal gold fairly well, lift it out and solder it much in the same way as he does, and putting on the matrix in the same way. The matter of the platinum and the method he suggests for lifting out the filling are two good points. They certainly are valuable and worthy of every consideration.

Dr. J. G. Reid:

I am interested in inlay work, and I am glad that such great improvements are being made in this line of work. Dr. Batchelor's method evidently is a further progress in the development of inlay work. It is a good one, and I am very grateful to him for what he has shown me.

I would like to ask the doctor with regard to the presence of moisture between the layers of the gold. Is there a probability of steam being formed, and that this will interfere with the globularizing of the gold?

Dr. Batchelor:

Only theoretically. I have never seen it occur.

Dr. E. J. Perry:

I never use a flux; do you?

Dr. Batchelor:

Very little. I would use a flux if I should get any blood into the cavity.

DR. E. J. PERRY:

Why do you consider that it is sufficient to apply the heat with a blowpipe rather than to hold it over the flame?

DR. BATCHELOR:

We all have our methods. I tried to make an inlay at Dr. Ames' office with a small blowpipe. The moment I began to flow the solder I saw that it was not flowing into the inlay. Probably, if I had inverted it and soldered from below, I would have gotten just as good results. Sometimes I get better results by holding it on a wire sieve and blowing the flame from beneath. But I use very little flux; I do not believe that any is needed if everything else is done properly.

DR. J. E. HINKINS:

I have not been an enthusiastic inlay man, because I thought that they, like everything else, had their place, and a very limited one. I have done more gold inlay work than porcelain, and this method appeals to me very much. My observation has been that in gold fillings more damage is done to the margins of the teeth, either by polishing the filling or by excessive malleting on the enamel, than is done in inlay work. More good fillings are spoiled by these two things than by faulty adaptation. This is an advance in inlay work, and I want to thank the doctor for his ideas. I shall put them into use at once.

DR. BROPHY:

Nothing has been said about making the matrix, getting the form, molding the platinum.

DR. BATCHELOR:

That is a waste of time. You get better adaptation this way than you get with an impression.

DR. AMES:

In case of an incisor with a contour corner,—what sort of matrix would you use? The same form of Ivory matrix—and would the mass of crystal gold be retained readily?

DR. BATCHELOR:

Yes and no. There I would use a steel band matrix. I would pack the gold in almost enough, slip the band around and pull it up.

I want to thank you very much, indeed, for the reception you have given me, but I do not want to go down into history as being a believer in the gold filling as the only one on earth. If I were confined to the use of any one filling material, I should use gold and tin. The man who will win, is he who adapts himself. I save lots of teeth with gutta percha that I can not save with anything else. There is no contraction in these inlays. I am sure that they are a success.

Dr. Carpenter:

Do you use Evans' gutta percha cement?

Dr. Batchelor:

It is useful for crowns. Its advantage is that it is worked easily. It is between the temporary stopping and the low heat gutta percha. But for setting crowns I should prefer the high heat gutta percha.

Dr. Ames:

Low heat gutta percha is a good thing with which to set crowns or bridges. The more piers you have in the bridge, the lower heat gutta percha can you use and have it hold the bridge. But it will not hold a single crown or two-pier bridge.

Dr. Carpenter:

In case of extensive bridge work, with three or more anchorages, it would be a good thing to use because it can be taken off readily.

THE FOURTH INTERNATIONAL DENTAL CONGRESS AND THE INTERNATIONAL DENTAL FEDERATION.

REPORTED BY R. C. BROPHY, M. D., D. D. S., CHICAGO, ILL.

(Continued from page 1134, November number.)

In Section III, devoted to chemistry and metallurgy, J. P. Buckley, Ph. G., D. D. S., Chicago, read a very interesting paper, and one of scientific value because of original deductions which it announced, entitled "The Chemistry of Pulp Decomposition, with a Rational Treatment for This Condition and Its Sequelæ."

In this essay the claim was made that the chemistry of pulp decomposition has not been studied to very great extent, and that the conclusions which have been arrived at, not having resulted from properly directed, thorough and uniform scientific research, are many and varied. It was also declared that until the question of the chemistry of pulp decomposition is definitely settled the application of drugs and remedies for the correction of the putrescent condition and the restoration of the color of the tooth structure can never be placed on a rational basis. The chemistry of animal tissue was reviewed and comparison made with that of pulp tissue, in which it was shown that in no essential particular do they differ.

The essayist showed that animal tissue consists of proteids, carbohydrates and fats, and that in the decomposition of this tissue by micro-organisms the initial process is one of fermentation, brought about by the decomposing of the carbohydrate constituent, this creating an acid medium favoring the action of the micro-organisms present having the power to decompose the proteids when the process of putrefaction is inaugurated. Among the products produced by this decomposition, it was stated, are hydrogen sulphide, putrescin and two isomeric substances—cadaverin and neuridin—the latter being a non-poisonous base, except when it is contaminated by such bases as putrescin and cadaverin, the latter two being extremely poisonous.

In selecting drugs to be used in a rational treatment of abscesses without fistulous opening, a modification of above formula was recommended, the essayist claiming that in this latter condition the proteid constituents (coagulable material) have undergone the process of decomposition, and new compounds with entirely different properties have been formed and must be specially considered and treated.

The formula given by Dr. Buckley for the successful treatment of putrescent pulps was:

℞ Tri-cresol.
Formalini, aa f drachm j.

M. Sig. On a small pledget of cotton, hermetically sealed in the pulp chamber for twenty-four to forty-eight hours. One treatment generally sufficient.

In the treatment of blind abscesses this formula is modified, because in these cases the decomposition of pulp tissue is complete; the intermediate products have largely been broken up and pus has been formed from the tissue surrounding the end of the root. The treatment first called for in the case of blind abscess, mechanical evacuation of the pus having been performed, there remains no necessity for using formaldehyde in the same strength and solution as in those cases where decomposition of pulp tissue is not complete. For blind abscesses, therefore, the formula recommended by Dr. Buckley is as follows:

℞ Tricresol, fl. drachm j.
Formalini, fl. drachm ss.

M. Sig.—After mechanically evacuating the pus, on cotton, hermetically seal in the canals from twenty-four to forty-eight hours. Two or three, oftentimes one treatment is sufficient.

The essayist showed, from a chemical standpoint, how these drugs united chemically with the end products of decomposition producing, as a result, substances within the tubular structure of the tooth, which in themselves are antiseptic and germicidal in character.

The discussion of this paper was opened by Dr. A. W. Harlan, who, after complimenting the essayist, questioned the statement that there was fat in the pulp tissue. He objected to the use of coagulating agents in the treatment of pulps, which had only become partially decomposed, but he agreed with Dr. Buckley in that when the decomposition was complete or had progressed to any considerable extent, the proteids, or coagulable materials were no longer present in the tooth and hence we are justified in using in these cases coagulating agents.

Dr. Harlan stated that a number of years ago he performed many experiments with teeth in the mouth, which were afterward extracted —teeth from which the pulps were but recently removed; and that these experiments showed conclusively that coagulating agents would not penetrate the dentinal tubuli.

Dr. J. D. Hodgen, of San Francisco, followed Dr. Harlan and supported Dr. Buckley in the argument that fat is one of the constituents of pulp tissue. He said that fat is a constituent of nearly all animal tissue, and that, although it might not be present in the original tissue, he believed that the elements were present in the pulp which, through decomposition, would and do produce fat.

While not objecting to the treatment as given by Dr. Buckley, he said he uses in his practice sodium dioxid, explaining from a chemical standpoint how soap and glycerine, soluble substances, are produced by the action of sodium dioxid upon the putrescent material.

An address made by Dr. C. R. Turner, of Philadelphia, as chairman of Section VIII, devoted to Prosthesis, at the calling of the section, was of a character which merits generous notice because of the able appeal made in behalf of more earnest and energetic devotion on the part of the profession to study and improvement, and development of dental prosthesis. Referring to the congress, Dr.

Turner said: "As the wise men of Egypt and Phoenicia visited far and wide to broaden and enlarge their knowledge by contact with men of other nations, as the Greek youth assembled in the market places to learn the principles of argument and oratory from the life of Demosthenes, as Paracelsus gathered from his travel the facts which he formulated into our first chemistry, so from time immemorial personal intercourse has been fruitful means for the dissemination of learning. That they might council more closely together, it has been by a process of easy evolution that congregations of men have taken place, that in addition to the imparting of knowledge, theses might be debated and fact established; and much wisdom has come from these deliberations.

"It is here that the earnest worker, in pursuit of truth, brings the findings of his careful search in contribution to his fellow man."

The gist of Dr. Turner's reference to the department subject was as follows:

"The portion of dentistry with which we shall have to do in this section is dental prosthesis in its broadest sense, and includes the replacement of any or all of the tissues of, and pertaining to the masticating apparatus.

"If we may believe that the data assigned is correct, the findings in Etruscan and Phoenician necropoles seem to show that prosthesis is as old as dentistry itself.

"Whether it be as crude as the use of a vegetable fiber, blanched by mastication by the courtesans of the port of Athens in a vain attempt to lure the unwary by the borrowed integrity and whiteness of their dentures, or whether it be as unsatisfactory as the teeth with which the divine Cleopatra may have charmed Mark Antony, although she might only have been able to endure them when he was present, prosthesis, since its beginning, has endeavored honorably to supply to frail humanity portions of tissue that have been lost through the curse of disease, or the ill fortune of accident, in order that form might be preserved and function prolonged.

"One may hardly be so sanguine of the possibility of dental prophylaxis, of dental hygiene, or of dental surgery as to fear that the need for dental prosthesis may cease to exist. In spite of conservative dentistry, and in addition to its careful administration, the field of prosthetic dentistry will continue to enlarge and develop. And along what lines shall its further evolution take place?

"Mr. Thomas Huxley has said that scientific knowledge differs from common knowledge only in its greater accuracy, and in our own particular field of human enquiry it is evident that the tendency of investigators will be along the lines of exactness in their search for its ultimate truths. There must be an improvement in our knowledge of physics and mechanics, which shall permit the construction of artificial substitutes in such a manner that any present difficulties which attend their use may be overcome. We must enlarge our acquaintance with form and color, the fundamentals which are necessary to an analysis of the requirements of our creations, so that the lost parts may be supplied by substitutes in such perfect harmony with their environments that they shall escape detection after careful inspection. We have room for an improvement in the technique of present processes, and a fertile field for labor in the search for material of greater cosmetic and material possibilities."

In Section VIII Dr. Hart J. Goslee, of Chicago, read a paper, entitled "The Mechanical Requirements and Cosmetic Possibilities of Modern Artificial Crown Work."

Opening with an endorsement of the principle that it is the very highest achievement of art to copy nature, and with the claim that in dentistry that principle has been supported and followed to the extent that accomplishment of substitution of the artificial for the natural, to a degree of accuracy and perfection precluding detection, is possible, the essayist asserted and deplored the fact that many do not zealously prosecute effort to that end; and that still more make no such effort whatever, and he gave as his reason for writing this particular paper a desire to stimulate others to aid in the elevation of the profession in general, and of dental mechanics in particular, to a sphere beyond that of the mere artisan, and more in accord with the higher degree of art which modern possibilities offer.

That cosmetic requirements of dentistry demand the use of porcelain Dr. Goslee said was acknowledged, and that the mechanical requirements were equally important from a standpoint of strength and stability, he said, was also conceded, and the question presented, how may the composite of these requirements be best obtained? The "Richmond" crown, with its various modifications, the essayist said, was an effort in this direction; and while he credited it with embracing features in line with both of the general classes of requirements, he criticised this class of crowns as inefficient for general employment through lack of translucency because of the thin plate of porcelain being backed by metal, the color of which in so many instances is reflected through it, and, furthermore, through the weakness of the facing, and of the attachment.

Speaking of "ready-made" crowns Dr. Goslee said: "The stupendous sales of some forms of this particular styles of crown, which the manufacturers have recorded each year since their introduction, silently attest to the willingness of a large proportion of the profession to use, and of the manufacturers to supply and to create and increase the demand for those methods which offer only the advantages of simplicity in application.

"In this particular connection is the employment of any ready-made style for immediate adjustment conceded to afford the same opportunities for obtaining a maximum degree of permanency incident to the preservation of the roots of the teeth, as is offered by the crown, which is skilfully constructed for the special case? Is it possible to secure as close an adaptation between the base and periphery of the crown and roots by grinding the one to fit the other, as is obtainable by the burnishing or swaging of a metal base? Is the joint secured by the former procedure as impervious to the penetration of the secretions of the mouth as is the joint which may be obtained by the latter? Do we not depend largely upon the closeness of this joint for permanency in the operation, and are the opportunities for the protection and preservation of the root as favorable by the former as by the latter?

"My answer to all of these manifestly logical queries is emphatically in the negative, and I can scarcely believe, in view of the present methods for obtaining a maximum of all the combined requirements incident to the application of artificial crowns, that the continued more or less extensive employment of ready-made products is indicative of the progress which the profession is making.

"Indeed, it occurs to me that the general uses of ready-made crowns by the ambitious and conscientious practitioner of today is as deplorable a practice as the employment of the so-called 'shot-gun' prescription by the modern physician; and I believe that the sooner the progressive practitioner arrives at this conclusion, and abandons the use of all forms of ready-made crowns—except, perhaps, in rare instances—the sooner will he be adopting more conservative and reliable methods; putting forth better efforts, and conserving to more permanent results."

Capping ends of roots was claimed by the essayist as one of the composite mechanical requirements to perfect crown work, and much stress was laid upon the statement that protection and preservation of the root and permanency of the operation is dependent upon the proper preparation of the root for a cap, the nice adaptation of a metal base or floor over the end of the root, and the placing upon this of a narrow rim of metal of sufficient thickness to insure retention of form in adjusting this band to be accurately adapted to the root walls, and not to be allowed to pass within the free margin of the gums far enough to irritate the peridental membrane.

In closing Dr. Goslee said that the combined mechanical and cosmetic requirements may be best obtained in a large proportion of cases by the employment of facings and the construction of modern porcelain crowns made especially for each case, and that, particularly in reproduction of the ten anterior teeth, this latter mode of construction should and, in his opinion, would become the universal, if not the exclusive, practice in time.

In Section IX, devoted to *Education, Nomenclature, Literature and History*, Dr. Louis Ottofy, of Manila, read a paper entitled "History of Dentistry in the Philippine Islands," in which he said:

"So far as dentistry is concerned, fifty years ago the Philippine Islands knew nothing of the science. Indeed, very little was done until about twenty-five years ago, when a native, Jose Arevalo, under the tutelage of an American, acquired a slight knowledge of the practical part of the profession.

"Without home facilities for education, through alliance with Spain, a nation not then prominent in the ranks of dental advancement, and the lack of knowledge of the Spanish language on the part of the people, the progress of the profession was slow.

"American occupation of the islands has given dentistry an impetus, but even now there are not to exceed fifty dentists, all told (exclusive of the army service), in the islands. The majority of these are practicing in Manila, and the mass of the six million inhabitants receive no service and know nothing of dentistry."

Following an outline of the pre-American occupation history of the natives, Dr. Ottofy told of the changes which had occurred since American succeeded Spanish rule.

In another paper read by Dr. Ottofy before the congress, entitled "Examination and Tabulation of the Condition of the Teeth of Public School Children," it was stated that caries is as prevalent amongst the Malay race as amongst the Caucasian race.

In the latter paper it was suggested that a systematic and uniform periodical international examination and notation be made of the condition of the teeth of school children in all countries of the world. This to be done for purposes of comparison, to note improvement or deterioration in general health of the dental tissues, and as an aid in effort to determine the causes leading to either result.

The wish was expressed by Dr. Ottofy that the congress, at that time, name a committee to enter upon the work and to report at the next succeeding congress.

A paper, read by Dr. Reuben C. Brophy, of Chicago, entitled, "Rationals of the Use of Materials for Base-Plates in the Construction of Artificial Dentures," was a plea for abandonment by the dental profession of the use of vegetable compounds for all purposes where contact with the tissues of the mouth is fixed, as in base-plates. The argument was presented that these compounds are not compatible to animal tissues, and the reasons were given. The most important cause of incompatibility, in the essayist's opinion, being the fact that the vegetable compounds are of too high specific heat to permit of free radiation of the animal heat through them, and that for this reason the underlying tissues are continuously maintained in a superheated condition.

Lack of hygienic qualities, and evil bearing upon the standard of mechanical skill of the profession were given as further reasons why the use of vulcanites and other vegetable compounds should be condemned and their use abandoned by the profession, and the metals which alone, from a scientific connection, are physically adapted to use as base-plates, it was urged, should be employed for that purpose.

In bringing our report to a close, regret must be expressed that so little of the much which was good in the programme of the congress has been mentioned, but anything like a synopsis of the complete proceedings would be far beyond the capacity of the reporter, even had THE DENTAL REVIEW expected or desired it.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

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EDITOR: C. N. JOHNSON, L.D.S., D.D.S.

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EDITORIAL.

THE DENTAL REVIEW FOR 1905.

The publishers and editors of THE DENTAL REVIEW have reason to look back over the past year with considerable satisfaction. The present number rounds out the eighteenth year of this journal, and it is safe to say that no year of its existence has been more successful than the one just closed. It has published more than twelve hundred pages of reading matter and the significant thing in this connection is that none of this is copied from other journals.

THE DENTAL REVIEW aims to present to its readers an entirely fresh table of contents with each issue and this fact largely accounts for the rapid growth of its subscription list. Not only this, but the contents of each issue are so varied as to meet the demands of all classes of readers. This is the constant aim, to present something in every issue which shall appeal to the different tastes of different readers, from the man of ultra scientific bent to the one who is intensely practical. And for the reason that most of the profession are of the latter class, the effort is made to offer a large predominance of practical matter. The average reader of a dental journal wants something that he can apply to the needs of his every day practice, he wants something that will be useful to him in a tangible and material way, something that he can turn to his account and thereby shorten up his work and relieve part of his drudgery. In each issue of the DENTAL REVIEW will be found articles of this nature, and in addition to the lengthier papers of a practical character there is always the department of Practical Hints which contains short, crisp and valuable items requiring only a moment to read but filled with useful ideas for a busy practitioner. This Practical Hints department has made a decided hit with our readers, and we hope to make an important feature of it for the coming year. Every article in it is written especially for the Dental Review, and it is no small labor to gather together these items each month. Many of our contributors have favored us in a most loyal manner by sending in these practical hints and we are deeply appreciative. They have not only helped the Dental Review, but what is even more important, they have aided immeasurably its many readers in facilitating their office work. It now remains for the readers to respond more generally in sending in such items. Every practitioner employs little special methods in his work which help him to perform his tasks easier, and which make his results more satisfactory. He owes it to his profession to give his fellow practitioners the benefit of these ideas. Most men are willing to do this, and the only excuse readers usually make for not contributing more liberally is that they fear their methods are old or have been followed by others. This is no valid excuse, because even if a method is not new and has been employed by others it does not follow that it is known to all, and the very fact of publishing a good hint will bring it before many readers who are unfamiliar with it and who are greatly profited by its perusal. What would be the condition of the profession today if all the good ideas had been printed only once? It sometimes requires repetition to bring a fact vividly before the profession, and frequently the individual wording of an idea will carry it home to a reader who before, in another garb, had failed to grasp its significance.

The Practical Hints department is intended to be a clearing house for all the useful little ideas floating in the brains of our readers, and to get the best results all should contribute. This is especially meant for *you* who chance to read this editorial. Just take a memorandum pad and jot down upon it every little practical "kink" you employ in your work and send it. In doing this you will stimulate others and the result will be that this department will furnish *you* and the profession an abundant fund of useful information each month. In the language of the life insurance men, *"do it now."*

For 1905 the Dental Review starts out with better prospects than ever. It is being more widely read every day, and this is a constant stimulus on the part of its publishers and editors to furnish a journal which shall be of real benefit to the profession at large. With the close of 1904 it sends to its many readers a note of thanks for the past, and a word of hope and encouragement for the future.

THE EDITOR'S DESK.

A WORD BETWEEN YOU AND ME.

When I started this department three years ago I did it with the proverbial fear and trembling. It was an impulse of mine based on the desire to get as close as possible to my readers. In all my editorial work I have ever had the wish to metaphorically clasp hands with my readers, to touch elbows and kick shins under the table with them. It was this feeling which led to the establishment of the department. I consulted with the publishers about it and they told me to do precisely as I wished in the matter, and in passing let me state that this has been their attitude in the entire policy of the journal since I became its editor. I have had not one word of complaint, not one word of dictation from them, not even a suggestion as to policy, or what I should, or should not, print. If any mistakes have been made they are my mistakes, and after these years of association I am glad to make this personal acknowledgment.

But when I started this department I had my doubts. I was fearful that the criticism might be made by readers that it "wasn't dentistry," and that anything outside of dentistry had no place in a dental periodical. I even omitted the "Desk" occasionally when crowded with other matter having a purely dental trend, but what was my surprise and my very great pleasure to receive numerous letters of protest from readers whenever the "Desk" failed to appear. These letters have come from all parts of the country and some from other countries, and they have been the means of the "Desk" appearing more uniformly of late. During the past year every issue has contained something from this department, and the correspondence which these articles have brought to me, and the kindly expressions made personally on their account, have proved one of the most pleasant experiences of my professional life. It has not always been possible to acknowledge individually, as I should like to have done, the many letters thus received, but I wish my readers at this time to know how very fully I appreciate their kindly interest, and their commendation of the articles. I often wonder if the average reader fully realizes how much of an inspiration it is to an editor to receive a cordial letter of appreciation concerning something that has appeared in his magazine. It is such things as these which a thousand times recompense him for the daily grind of editorial work. For editorial work is a grind which few who read the journal can understand. Imagine the task of supervising, revising, writing, or re-writing more than one hundred printed pages of matter each month, to say nothing of the myriad editorial duties aside from this. And with a busy man all or most all of this must be done after eight or nine o'clock at night when rational people are in bed. With this kept up month after month the marvel is not that dental journals are as defective as they are, but that they are as good as they are, and it is a blessing to the editor that readers generally are charitable of mistakes and shortcomings.

But when readers even go further than being charitable, and take the trouble to drop the editor a line of commendation, that is the height of the editorial heaven. There is nothing which so stimulates him to better effort as this, and in the year just passed I have been abundantly blessed in this respect. I can only renew my assurance of appreciation and my heartfelt thanks.

And now as the Yuletide season is upon us once more, and the new year opens out before us, I wish to send a word of greeting to each one of my readers with the fervent hope that all of the good things of life may be theirs in measure full, and that 1905 will find them better, broader and altogether happier than they have ever been before. May I also beg to include in my good wishes at this time my fellow editors of other journals, whose labors I am fully in a position to appreciate, and whose accomplishments I am often led to admire. Here's wishing well to you for the next twelve-month—and for each succeeding twelve-month.

REVIEWS AND ABSTRACTS.

General Catalogue of Medical Books. 109 pages. Price 25 cents. Published by P. Blakiston's Son & Co., Philadelphia.

This is a most complete catalogue of medical and dental books, arranged in a very convenient order and of a form suitable for ready reference. It is worth the price many times over for students or practitioners who wish information as to where they can obtain books for reading up on any given subject. The price of each work is given.

The Physician's Visiting List for 1905. Price $1.00. Published by P. Blakiston's Son & Co., Philadelphia.

This is a useful book, not only for medical men, but for dentists. It contains among other good things "The immediate treatment of poisoning," telling what to do at once, and also a very complet dose table. It is full of valuable information.

ORTHODONTIA AND ORTHOPAEDIA OF THE FACE. By VICTOR HUGO JACKSON, M. D., D. D. S., Member of the National Dental Association, Professor of Orthodontia in the Dental Department of the University of Buffalo; Fellow of the New York Academy of Medicine; Member of the American Medical Association, etc. With seven hundred and sixty original illustrations. 517 pages. Price $5.00. Published by J. B. Lippincott Company, Philadelphia and London. 1904.

This is a work which at the outset commands admiration for the excellence of the text and the number and perfection of the illustrations. Dr. Jackson has long been known as a student of orthodontia, and in this book has given the sum total of his years of experience along these lines. His methods are somewhat different from those of other recognized specialists in orthodontia in his emphasis of the principle of spring force in regulating in place of screw pressure, and in his frequent use of vulcanite plates with spring attachments. As to the merits of the various systems this must be left for the specialists to decide among themselves by demonstration and experience, but this book must appeal to a large number of readers on account of the clear and altogether admirable manner in which the author presents his views to the profession. The volume is an ornament to any dental library.

PRACTICAL HINTS DEPARTMENT.

EDITED BY G. W. JOHNSON, D. D. S.

[This department is for busy readers. We want short articles containing practical ideas—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address G. W. Johnson, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

rrection :—In the article on "Local Anæsthetics," published in the November REVIEW, page 1139, the second sentence should read: Nothing acts so nicely as a 2 per cent solution of cocain (9 60-100 grs.) finely powdered, added to one ounce of *original package Campho-Phenique.—A. C. Hewett, Chicago.*

Preparation for Treating Root Canals:—A good preparation for treating putrescent root canals and for soothing inflamed pulps is made by mixing equal parts of oil of cloves and carbolic acid *crystals* This can easily be accomplished by melting the carbolic acid crystals by heat and adding the oil of cloves.—*F. W. Stephan, Chicago.*

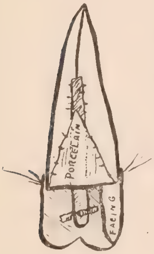
A Useful Application for Sore Lips While Operating:—I find that a little collodion is very useful to apply to sore lips before beginning to operate. It takes out the soreness, protects the lips and they heal rapidly after the application. It is also useful to apply to wounds on the hands as it reduces the danger of infection and washing will not remove it.—*W. J. Hemphill, Dexter, Iowa.*

Preparing a Molar for a Crown:—In preparing a molar for a crown, if there has been no decay at the mesial or distal surfaces the operation is very much simplified by cutting out these surfaces with a bur and making cavities. This removes a portion of enamel often very difficult to cleave, and the cavity thus made can be easily filled with amalgam, making a very strong base for the crown.—*F. W. Stephan, Chicago.*

To Keep a Gingival Margin Cavity Dry Without Rubber Dam:—Prepare the cavity and place a napkin in position. Saturate a little floss silk, or small, loosely twisted thread of absorbent cotton, with thin cement. Dry the cavity and pack the silk or cotton around under the gum margin. This method is often useful where the rubber and clamp is in position and the rubber is stretched and does not pass under the gum margin at the sides of the clamp.—*R. E. Sparks, Kingston, Ont.*

Repairing a Matrix for an Inlay:—No matter how careful one is in burnishing a matrix in a deep cavity it can seldom be done without tearing the matrix at the bottom of the cavity. I burnish my matrix in the cavity carefully, regardless of the tearing at the bottom. I then take a pellet of gold, unfold and cut out a piece that will cover the bottom of the cavity and press it to place in the cavity, using firm pressure, after which I burnish it around evenly and then press in a little wax. The matrix can then be removed and the wax burned out in the furnace. This makes a matrix complete and there is no danger of the porcelain running through and causing a misfit.—*C. J. Hadley, Chicago.*

Box Crown:—Cut represents a badly decayed bicuspid root with frail walls, restored in the following manner: A platinum pin was inserted into the canal and an impression taken. A model was made from the impression and porcelain body was packed into the model to restore the root. After the porcelain was baked and the surface roughened, it was cemented to the root and a box crown, which was previously made, was adjusted. Otherwise it would have been a gold crown instead of a *box crown.* If the bite is short, porcelain crowns are almost always broken during mastication. This method may be adopted where the bite is shorter than would justify even a Logan crown.—*Homer Almon.*



Method of Removing a Gold Crown and Repairing It:—To remove a gold crown from a bicuspid or molar, drill a hole with a No. 5 round burr near the occlusal third of the buccal or lingual surface. Let the burr pass at least one-third of the distance through the crown. Insert an instrument, properly shaped, into the opening and press up and down and the crown will be easily loosened.

To repair the crown invest it and remove the investment material from the hole in the gold with a small chisel. Place mat gold in the hole and flux, or have the solder fluxed. Hold a piece of 20 K. solder over the hole with a pointed instrument, keeping the point at the center of the solder and turn on the heat. The instrument keeps the center of the solder from flowing, while the sides melt and become attached to the crown without spreading over the surface.—*A. M. Lewis, Austin, Minn.*

Investment Material:—About five years ago I was convinced that crowns and bridges could not be properly constructed without using one of the various investment compounds that we see advertised, but I have readopted the old style—sand and plaster—investment with very pleasing results. Some time ago I procured a peck of sand such as the cement walk builders use and when I have occasion to invest a case I employ the following method: First add a little potassium sulphate to the water in the plaster bowl and sift in the amount of plaster necessary for the case. After the plaster is absorbed pour off the surplus water and stir in sand until the mixture looks like mortar that is used for plastering houses. Place this upon a glass slab and invest the case. It is better to trim off the surplus while the investment is soft, for when it becomes hard it is difficult to do so. This investment will be ready for the fire in three minutes or less and I do not know of any material that will stand as much heat and be as hard after heating. It is simple and cheap and I hope that others may take the pleasure in its use that I have had.—*E. H. Allen, Freeport, Ill.*

Rule for Determining the Percentage in Mixtures:—The item under the above caption in Practical Hints Department of THE REVIEW for November, page 1139, credited to Dr. A. C. Hewitt, is in error or, rather, is not explicit in one particular. If the ounce of liquid is weighed, it is correct to multiply by 480, but in practice this is seldom done. The rule given in recent publications, and followed by most prescribers, is to multiply by 455.7 (to be exact, 455.69), the weight of a measured fluid ounce in grains. If the percentage is high this makes a notable difference. To simplify calculations the fraction is usually dropped and 456 is multiplied by the desired per cent the two right hand figures discarded; the remaining figures give the number of grains required.

If the number of grains to the ounce is given and we desire to know the per cent, multiply the number of grains by 100 and divide by 456.

If both ingredients are either measured or weighed, 480 is the number of minims or grains in an ounce. A fluid ounce of water weighs only 455.69 grains, and this is the ounce understood, unless it is otherwise explicitly stated.—*William H. Trueman, Philadelphia, Pa.*

DOMESTIC CORRESPONDENCE.

Los Angeles, Cal., Nov. 1, 1904.

Editor Dental Review:

The Southern California Dental Association held its annual meeting during the first three days of last week at San Diego. On Saturday, the 22nd, about forty dentists, several accompanied by their wives, went from Los Angeles on the Santa Fe in a special car. It was a jolly crowd, out for a wholesome good time. Saturday evening all who chose to accept tickets were guests of the San Diego dentists at the very fine natatorium, and we were all for once "in the swim" with much hilarity. Sunday was enjoyed according to various individual tastes. Some went to church, some rode, some did both, and all enjoyed the views from the wide veranda of Hotel Robinson, looking over the city, the great bay and harbor, Coronado, Point Loma and the sea. All meetings and clinics were held in the hotel, with ample accommodations. The first opened Monday morning at 9 o'clock. The time till 12 o'clock was spent in hearing and discussing reports from Drs. McAlpine, Jones and Atwater on the International Congress, its work and trend of thought. Afternoon from 1 till 5 was devoted to clinics, about twenty in number. It is worthy of note that fourteen of the clinics were related to porcelain, gold inlays and prosthetic technics. In the evening we were favored with two unusually good papers, both illustrated by fine stereopticon views, one on tumors of mouth and face by Dr. Ethel L. Leonard, and one on Comparative Odontology, by Dr. Wm. Bebb.

Tuesday morning, 8:30 to 10, was devoted to clinics, nine in number, mostly on crown and bridge work. Dr. Bebb gave a fine exhibit of crania and teeth illustrative of comparative anatomy. From 1 to 2:30 was given to the hearing and discussion of a paper sent by Dr. Platt of San Francisco—*"Our Unhappy Precedents."* It was largely an arraignment of dentists for their failure to charge real professional fees, the reason being that they did not as they should cut away from the old and *"unhappy precedents"* of early dentistry. Time from 3 to 5 was given to an excursion on beautiful San Diego Bay, one of the finest natural harbors in the world. This was greatly enjoyed. At 6 o'clock at Hotel Robinson, the visiting dentists gave a dinner to the dentists and their families resident in San Diego.

This also was a very happy affair. At 8:30 in the assembly room, a paper was given, beautifully illustrated with stereopticon views, on *Mouth-Breathing in Relation to Orthodontia,* by Dr. Ray D. Robinson of Los Angeles. This paper will be of great interest to the profession when published. It was certainly one of the best the writer ever listened to in relation to orthodontia—or any co-related subject.

Wednesday morning was a busy one from 9 o'clock till 12—a paper by Dr. J. D. Moody on Porcelain Inlay, discussion; discussion of all clinics, business session, election of officers, resolutions, etc. The train for Los Angeles left at 1:45, a special car being provided as before for the dental party.

The writer has never attended a more cheerful, harmonious meeting, nor one in which more was accomplished in a given time. The president, Dr. Ford, is the personification of energy and clear-headed executiveness. "Get busy" is his watchword.

I wish to repeat what I wrote in substance a year ago, that the Southern California Association has, I think, come nearer to absorbing the whole body of dentists in the territory represented than any other society in the world. It has about 180 members, out of a probable 225 or 230. The dues are $1.00 per year, and there is always plenty of money in the treasury. Being loyal Californians, the members stand by the only journal published in the state, the *Pacific Dental Journal*, of San Francisco, and send their proceedings thereto. In due time I am sure the eastern journals will discover some items in our report worth copying. Affectionately yours,

GARRETT NEWKIRK.

KINGSTON, Ontario, Canada.

Editor "Dental Review":

Sir: In your editorial upon "Music" in the October number, you ask what there is about music that so takes hold of you. I don't know, unless it be as the end man of a minstrel troupe is said to have quoted: "Music hath charms to soothe the savage beast." The effect of music upon us is governed by the language it conveys. Josh Billings aptly expressed the sentiment when he said, "There is no music to a hungry man like the dinner horn." The rendering of the composition by the "Little Indian Girl," notwithstanding how imperfectly, conveyed a charm which would be entirely absent, or which would be displaced by disappointment if similarly rendered by one of whom we might expect perfection, and in whom we felt no interest. You say truly that there is much music in the world beside that produced by "piano, violin or harp." How much brighter the world would be to us if we listened for the music of a responsive chord in the lives of those we come in contact with in daily intercourse. And how much brighter we might make the world for others if we were careful to only touch the keys which would produce the greatest harmony of our own natures. R. E. SPARKS.

NEW YORK LETTER.

New York, Nov. 28, 1904.

My Dear Mr. Editor:

At a meeting of the Institute of Stomatology November 1st at the Chelsea, the programme was somewhat varied. The usual monthly paper was substituted by short talks on practical subjects by at least a half-dozen men. Dr. Hodson of New York showed and spoke of a number of little devices original with him. The constant use of the mouth mirror, in holding the cheek free from the work, as a reflector and illuminator. He showed one constructed with a pin soldered to the frame and projecting at right angles thereto for the purpose of holding the first pieces of gold in situ while operating. Then he showed how he had utilized an old hand piece, locking the same for use of the hand bur, a penholder for holding orange wood polishing sticks, old smooth pulp canal instruments bent at any angle for trimming amalgam fillings (while plastic) under the gum or at cervical edge. An old mirror frame properly shaped makes a good amalgam carrier and filings catcher. A rubber apron made of waterproof cloth, and large enough to cover the patient quite thoroughly was shaped to fit about the neck. Dr. Hodson uses this while cleansing teeth, especially while using the engine.

The *French* bibulous paper nerve canal points made on the spot he claims accomplish more in removal of debris from canals, and dries more perfectly through capillarity than any other device he knows of. Cotton on a broach has the tendency to push things ahead.

Oil of cajeput was referred to for cementing gutta-percha in cavities even where some moisture is present.

Dr. G. W. Weld of New York showed his improvement on Dr. Jenkins' fusing pan for porcelain work. It consists of a platinum disk shaped and riveted to the bottom of the Jenkins one. Also was shown home-made impression cups for holding impression compound for taking impressions of cavities for inlay work. They were made of platinoid and shaped to the part of the tooth to be worked upon, permitting use of the minimum of impression material. The impression secured, cement is flowed into it and subsequently the impression material removed. Matrix is made on that and porcelain baked in matrix as usual. A small metal loop should be soldered to the impression tray for ease of manipulation.

Dr. W. D. Tracy of New York showed some instruments he has devised. Several for helping in adjusting the anchor bands of regulating appliances. He calls them band conformers. The working face of the instruments are finely serrated. Then a pair of cervical trimmers, right and left, were shown, made from a pair of No. 5 (S. S. W.) lances.

Dr. McNaughton of New York had a set of his excavators for reaching minute and inaccessible points. They certainly were as delicate and nicely made as one ever sees. The doctor demonstrated how nicely celluloid matrices "fit," made from sections of a ping pong ball.

As a soldering investment clay, pumice stone and asbestos is his favorite. It is kept in paste form. Wire netting is used as a binding medium for all investments.

Dr. F. M. Smith showed some skiagraphs sent by Dr. Kells of New Orleans. Accompanying them were models. Dr. Kells showed several different conditions. Root canals, non-erupted teeth, impacted molars.

Somebody at the meeting made known that he has used an investing material which with him has surpassed all others. It consists of plaster 1-3 and ashes 2-3, finely sifted. It is non-shrinking and non-cracking.

The November meeting of the Second District Dental Society occurred on the evening of the 15th inst, President Gould presiding.

In the preliminary business of the evening much was said by several members regarding a traveling dentist whose methods did not appeal favorably to them. Ways and means of suppressing him were discussed. Being *legally* entitled to practice in the State of New York, having at some time passed an examination and received a license or permit to register, there did not seem to be any certain course to be followed.

This discussion brought out the fact that several physicians whose names appeared on pamphlets and advertisements issued by another *legally* entitled to practice, but great advertising dentist, had caused their names to be removed from said pamphlets, etc.

They were led to take this step by reason of the *medical* societies of which they were members *requesting them to do so,* because they were infringing the code of ethics. Good for the medical societies.

The paper of the evening was entitled "The Makers of Dentistry," a sketch of the evolution of a profession, by Dr. Charles McManus of Hartford, Conn. As it was an illustrated lecture—the room being darkened, there was no opportunity to take notes. The doctor has given much time to this research, going back into a very remote period, and with extremely fine illustrations portrayed the origin and progress of our profession to the present date.

At a meeting of the First District Dental Society at the Academy of Medicine the evening of November 7th, the usual order of business was soon disposed of by the president, Dr. Hatch, and then Dr. R. Ottolengui of New York was called upon to read his paper, the title of which was "A Consideration of the Study of Sterilization With Special Reference to Dentists." He said the washing of instruments accomplishes very little, but sterilization means much more. As an illustration of the ease with which patients might become infected when instruments are simply wiped, the doctor cited how he had dipped a needle into pus, then wiped it thoroughly to remove all pus if possible, then the needle was dipped into culture media, which subsequently proved that the mere wiping of the needle did not remove all bacteria, for cultures developed.

The assertion was ventured that few dentists operated with *clean* instruments.

Surgical cleanliness was referred to as the nearest approach to absolute cleanliness. This is made necessary by the fact that the surgeon deals with soft tissues. One reason advanced for the little infection following dental operations was that the dentist isolates, covers and protects with rubber dam the soft tissues while operating on the hard, which was described as a tremendous advantage; but as we approach true surgery, by operations upon soft tissues, we must exercise greater caution in sterilization.

The instruments used in cleaning teeth for one patient can readily be the means of infecting the next.

Dr. Ottolengui believes the instruments should be sterilized before and after each operation. The dental nerve canal broach steel is probably the most difficult to sterilize properly owing to its delicate form. Some use new broaches for each patient, but these are far from being free from contamination and cultures can be made. They are manufactured in a dusty, dirty shop under conditions absolutely non-surgical. They are handled by many, packed in cases and the glue used is far from clean. Gold or iridio-platinum broaches can be heated in the direct flame or boiled in sulphuric acid.

Can we find a good germicide in a *fluid* which will not injure instruments?

Dr. Ottolengui had in operation a neat, small sterilizer he has devised, made of copper the shape of short, broad test tubes with an inner removable steam chamber.

In discussion, Louis Bishop, M. D., a noted bacteriologist, wished they had dentists in the general hospital; especially to sterilize some of those terribly infected mouths found in hospitals. He knows that better medical and surgical results would follow, particularly in pneumonia cases and also in others. Two things are necessary to produce infection: Presence of infective material and susceptibility of the individual; the lack of resistance.

He gave as a reason why more people were not infected, that most are immune much of the time. As to absolute alcohol as sterilizing agent, he thought that the most it did was to intoxicate the bacteria.

Dr. Fitzpatrick, another physician, said that in the hospital they boil the instruments after an operation to kill the germ, and next day they are boiled again to kill the spores. He could not see any real effectiveness in Dr. Ottolengui's instrument because of being boiled in free steam. To be effective boiling under steam pressure is necessary. In Pasteur Institute they boil under 15 lbs. pressure for at least 20 minutes.

Dr. Fitzpatrick thought carbolic acid was much more effective than sulphuric acid. He says it would probably be quite difficult to lay infection at the door of the dentist in many instances because the evidences of such present so long after infection. For instance, syphilis takes forty-five days to develop.

Dr. Fossume expressed himself as much pleased with 40 per cent formaldehyde or formalin, especially in pulp canals. Pericementitis does not follow.

Dr. M. L. Rhein could not see any practical use for Dr. Ottolengui's instrument for object it was intended. Perfect asepsis, he argued, was impossible. All we can do is to use precautions.

The November session of the Central Dental Association occurred on the 21st at their old meeting place—Davis' Parlors on Broad st., Newark, N. J.

Quite a large audience assembled to hear Dr. D. D. Smith of Philadelphia, on *"The Use and Abuse of Arsenic."*

The doctor did not confine himself to his text, but went very far afield on several other subjects. In his opening he referred especially to his system of oral prophylaxis, in referring to which he spoke of physicians as despising the dental profession. After speaking of various methods for the immediate and painless removal of the pulp—cocaine anesthesia, etc.—methods which did not appeal to him—he entered upon a minute description of *real* arsenic and where obtained. Described its use internally to show the tolerance on the part of certain individuals of large amounts of the drug. Referred to the first use of arsenic for devitalizing the dental pulp by a Canadian dentist—Dr. Spooner—as showing the caution exercised in its use by Canadian dentists, despite its discovery for this purpose by one of themselves. He spoke of a visit he had paid some years ago to Canada to attend a dental meeting. At this meeting one gentleman said he had bought a bottle of arsenic. or some preparation, and had had it over a year, *but never opened it.* He claims that this excessive caution grows out of misapprehension and erroneous teachings. Referring to his early years of practice in Philadelphia, he spoke of some who at that time were using arsenic applied to sensitive *dentine* as an obtundent. By reason of the large number of devitalized teeth and discolored as well, which their patients had, it became the custom to teach that arsenic should not be applied to the dentine, but directly to the exposed pulp. He went on to show how by study and observation he was led to the conclusion that this was wrong. Spoke of the frequent toothaches which application to the pulp occasioned—the often difficult task of sealing it well into the cavity, and, failing to do so, the irritation of gum tissue by escape of arsenious acid, etc., etc., claimed that if applied to the dentine at some other spot—where a small opening might be made reaching *sensitive* dentine—and *not* applied to the pulp, the result would always be the *painless* death of the pulp. Said that this would invariably occur in from 24 to 48 hours in all incisors and cuspids. Certain teeth, he said, would resist the action of the acid if in contact with the pulp. Such teeth, he said, might be spoken of as immune, but it was not so, it was merely an improper application of the arsenic. If in such cases it is applied to the sensitive dentine and not to the pulp, all will be well, and as stated before, in single and in two rooted teeth always in 24 to 48 hours.

He had been inquisitive enough to take some pains to determine the amount needed to devitalize a pulp. He found that the amount he would usually use to devitalize four teeth was one-twentieth (1-20) of a grain. His deduction, from comparing that with the amounts given internally by physicians, was that no constitutional injury can possibly occur.

He inveighed against the use of mummifying paste. Describing the minute anatomy of the teeth he claimed that there would always be left in the tubuli of the teeth some living matter. This he always removes by the Gates-Glidden bur, in enlarging the canal, and reaming out that portion containing the largest amount of living matter. He claims we should remove all we can without injury to the root, and then cause complete asepsis by the use of wood creosote. Incidentally he inveighed against porcelain inlays, terming their present prevalent use a fad, which he warned the young men to avoid.

The discussion was participated in by a number of the younger members of the society who had been especially selected by the committee.

Following them Dr. B. F. Luckey of Patterson and Dr. J. G. Palmer of New York discussed the question, both differing with Dr. Smith in some of the minor details, though agreeing on general points, as, for instance, Dr. Palmer would not ream out the canals, nor could he agree that invariably in 24 to 48 hours the pulp would be completely devitalized, and Dr. Luckey did not agree in regard to the use of cotton for filling the root canals, nor would he leave an exposed pulp unprotected when placing arsenic elsewhere. Dr. Smith had described a case where there was an exposure through a large posterior approximal cavity. He described how he would form a cavity in the sulci and seal the arsenic there, and *put absolutely nothing in the* *large cavity.* He claimed that in fifteen minutes from the application of arsenic to the dentine, all aching would cease. Dr. Luckey could not accept this, and strongly advised covering the exposed pulp with some soothing protection. The gentlemen present seemed to endorse this emphatically.

The young society—"The Institute of Dental Technique"—held its November meeting at the Chelsea, preceded by the usual dinner at six thirty.

Dr. J. Bond Littig

Presented "Some Novelties in Prosthetic Dentistry."

The first case was a very unusual one showing the models of a lower jaw which presented a marked depression in place of the usual ridge. This depression was so wide and so deep that some one aptly styled it a trough. Dr. Littig described his method of securing a satisfactory impression by using crude gutta percha which was molded on a poorly fitting plate and worn by the patient until it became comfortable. From this models were made and a pure gold base swaged, upon which was built an ordinary vulcanite plate.

Models were shown of cases presenting an unusual amount of edema.

Methods of securing accurate impressions of the true arch were described.

Dr. Littig considers the removal of edematous tissue unnecessary in such cases. A method of anchoring minute porcelain tips for the broken edges of incisors was shown.

Much interest was taken in the discussion of these cases, a large number of the young men taking part in asking questions and describing their methods in peculiar cases.

At the coming annual meeting this youngest society expects to give a clinic by its own members.

We are promised great things for the next month or two. In December the First District Society will hold a *two* days' clinic with papers both evenings by Drs. Black and Wedelstaedt. Later the 2d district will have a big union meeting, all societies in and around New York being invited, and in February occurs the "Annual" of the C. D. A., which is always the feature of the winter. We will therefore have lots to tell you in our next.

Yours sincerely,

"The Boroughs."

DR. EDWARD H. ANGLE'S CRITICISM OF DR. ROBERT DUNCAN M'BRIDE.

In the last (November) number of the DENTAL REVIEW there appeared an article by Dr. McBride of Dresden, entitled, "The Modern Developments in Orthodontia." The article in question was one read before the American Dental Society of Europe, date not given. It is cunningly written, evidently with the intent to create the impression in the minds of his audience that the principal thoughts therein were original with the writer, and in this he seems to have been successful, as is evinced by the discussion which followed. In it "Dr. McBride's ingenious system," "Dr. McBride's methods," and "Dr. McBride's appliances," etc., are frequently referred to.

Now, the fact is, the thoughts contained in this article were all taken from my writings, and that, too, without the courtesy of an acknowledgment, or even so much as a quotation mark, notwithstanding that several times complete sentences are copied almost bodily. This can be easily verified by any one who will compare the article in question, first and principally, with my paper read before the Institute of Stomatology of New York City, October 7, 1902, entitled, "Some Basic Principles of Orthodontia," and published in the *International Dental Journal,* October, 1903; second, my article entitled, "Art in Relation to Orthodontia," read before the American Society of Orthodontists on October 10, 1902, and published in the *Items of Interest* in September, 1903; third, my article published in the *Dental Cosmos* in March, 1903, entitled, "The Importance of the First Molar"; and fourth, from my work on "Mal-occlusion of the Teeth," etc., sixth edition.

The principles set forth in these writings, and made use of by Dr. McBride without acknowledgment, are familiar to and the basis of common practice with all my students, as well as all the members of the American Society of Orthodontists, as is well known to all the readers of the *Items of Interest,* which magazine has published *all* the transactions of the above-named society.

The cases which the Doctor shows, although but simple ones and free from complications, and, when intelligently managed should not require a longer period than from four to six weeks to treat, have been treated along the right lines, and we congratulate Dr. McBride on being progressive and so promptly adopting what we believe to be the most modern in orthodontia. In striking contrast to this is the attitude of many of the "old school" in this country, for instance, the writers of the very latest books on the subject, whose attachment for the illogical, archaic and obsolete crowds into minute proportions everything modern, both in theory and practice; and also the attitude of some of our oldest teachers—see the papers of Drs. Case and Guilford read before the last meeting of the Pedagogic Society, which were principally in the defense of mutilation, and in criticism of me for declaring that extraction is now unnecessary and opposed to the art and occlusal requirements in orthodontia. We are glad Dr. McBride is not of that school, although one of the cases he reports shows extraction (whether done by himself or by some one else he does not state), that, in my opinion, was clearly unnecessary.

In regard to the discussion of Dr. McBride's paper by Doctors Davis, Sachs, Monk, Jenkins, Davenport and Spring, it is surprising to learn that these gentlemen do not keep better informed upon the literature of modern orthodontia. It is generally supposed that such men take American dental journals and carefully and intelligently read them, but it seems this is a mistake.

In another edition of my book which I am now preparing I shall treat of much that is still more modern in orthodontia, and I hope Dr. McBride will as quickly avail himself of it. At the same time, I would ask him to keep clearly in view the fact that the width of the Atlantic Ocean does not relieve him of his responsibilities regarding honesty, nor of the courtesies due one writer from another.

EDWARD H. ANGLE.

St. Louis, Mo., November 22, 1904.

MEMORANDA.

ANTIKAMNIA AND CODEINE TABLETS

Are recommended for neuralgia about the face and teeth; also for quieting a patient in advance of an operation.

THE SOUTHERN BRANCH.

Do not forget the meeting of the Southern Branch of the National Dental Association in Memphis, February 21-23, 1905.

"LE LABORATOIRE."

A new French publication devoted to prosthetic dentistry, issued under the able editorship of Dr. B. Platschick, 3 8 Rue Ventadour, Paris.

Dr. Platschick was one of the distinguished visitors from abroad in attendance at the Congress at St. Louis. We wish him all success in his new venture.

THE SOUTHEASTERN IOWA DENTAL SOCIETY.

The second annual meeting of this society will be held in Burlington, Iowa, on January 9 and 10, 1905.

WILLIAM M. TERRY, *Sec'y.*
Washington, Iowa.

C. M. WORK, *President*,
Ottumwa, Iowa.

PENNSYLVANIA ASSOCIATION DENTAL SURGEONS.

The fifty-eighth annual meeting of the Pennsylvania Association of Dental Surgeons was held at the Continental Hotel, Philadelphia, October 11, 1904. The following officers were elected for the ensuing year: President, Dr. M. I. Schamberg; vice-president, Dr. Albert N. Gaylord; secretary, Dr. J. Clarence Salvas; treasurer and librarian, Dr. William H. Trueman.

THE DENTAL SURGEON.

This is the name of a new weekly dental journal published in London, England, under the editorship of Robert Manning, L. D. S. The editor's address is 8 Henrietta street, Covent Garden, London. If all the succeeding numbers are as good as this first issue the journal will make a worthy addition to our periodical literature. We welcome this journal most cordially and wish it a full measure of success.

THE PEORIA DENTAL SOCIETY.

The dentists of the Peoria district are working up enthusiasm for the coming reorganization of the Illinois State Dental Society and have had some very successful gatherings of late. They are planning another one on January 3, 1905, at which they will have clinics in the afternoon and a banquet in the evening with one or two papers and the election of officers. They are arranging for a large attendance.

ALUMNI ASSOCIATION OF NORTHWESTERN UNIVERSITY DENTAL SCHOOL

Will hold its annual clinic Tuesday, January 17, 1905, at the University building, corner of Lake and Dearborn streets, Chicago. All members of the profession are cordially invited to attend. Address Dr. C. R. E. Koch for exhibiting space.

G. B. MACFARLANE, *Secretary*,
70 State Street.

F. W. GETHRO, *President.*

WHEAT PHOSPHATES.

Many years ago Dr. Allport induced E. H. Sargent to place on sale a preparation of Wheat Phosphates for children in cases of tardy development and eruption of teeth. This he used many years with most satisfactory results.

Nature's preparation of the lime phosphates is more readily assimilated than the artificial substitutes.

L. P. HASKELL.

NEW YORK ODONTOLOGICAL SOCIETY.

The thirty-eighth anniversary meeting of the New York Odontological Society will be held Tuesday, January 17, 1905, at the New York Academy of Medicine, 17 West Forty-third street.

The afternoon will be devoted to an interesting series of clinics, which will be given from two to five.

An important paper on "Porcelain" will be presented at the evening meeting, which will be followed by a collation.

W. D. Tracy,
Corresponding Secretary.

LA SALLE COUNTY DENTAL SOCIETY.

The La Salle County Dental Society, a component part of the Illinois State society under the new reorganization, was organized at Streator, Ill., October 24, 1904. The following officers were elected for the ensuing year. The next meeting will be held February 14, 1905, at La Salle, Ill. C. R. Taylor, president, Streator; C. S. Morsman, vice-president, Peru; L. E. Jordan, secretary, Ottawa; T. H. Barrett, treasurer, Ottawa; R. D. Moran, librarian, Kinsman; H. P. Dorsey, program committee, La Salle; P. J. Wendel, membership committee, Ottawa.

Truly yours,
L. E. Jordan, *Secretary.*

RECENT PATENTS OF INTEREST TO DENTISTS.

772,907. Dental draw press. Herman E. Reynolds, Buffalo, N. Y.

12,277. Reissue. Dental preparation for capping pulps. Abram L. Bower, Boyerstown, Pa.

774,045. Artificial tooth. Charles A. Davis, Pasadena, Cal.

773,570. Toothpick machine. William F. Hutchinson, Nyack, N. Y.

774,253. Tooth cleaner. James E. Keefe, Chicago, Ill.

774,185. Tooth powder canister. Achilles de Khotinsky, Chicago, Ill.

774,816. Matrix band retainer. Lisle H. Babcock, Canisteo, N. Y.

774,838. Dental tooth pin pointing tool. Leon H. C. de Fernelmont, Philadelphia, Pa.

774,879. Instrument holder for dentists. William G. Hullhorst, Toledo, Ohio.

775,083. Clasp for dental dams. James W. Ivory, Philadelphia, Pa.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice dentistry in Wisconsin will be held in Milwaukee, January 30, 1905.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years. For further particulars apply to

J. J. Wright, Sec'y,
1218 Wells building, Milwaukee, Wis.

CLINICIANS PLEASE NOTE.

Dr. S. Finley Duncan, of Joliet, Ill., supervisor of clinics of the Illinois State Dental Society, has mislaid the list of clinicians for the next meeting, and would be greatly obliged if all those who promised him clinics would forward their names to him at once so that he may make the list complete.